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THE WINE
RAILWAY APPLIANCE CO.
TOLEDO, OHIO

"SAFE GRIP" LADDERS AND HANDHOLDS

TO SERVE AMERICA BETTER...

Freight Car Production **TRIPLED!**

America's railroads are the arteries of our commerce. They are, indeed, first in peace and first in war—a means of mass transportation of the things we use and need.

And the heart of our transportation system, the unglamorous freight car, is always at work, day and night, carrying the load through good weather and bad—pumping the life-blood of our commerce.

As we turn into the new year, we, the builders of these freight cars, want to report to the American people. For during the past twelve months, high car loadings—greater demand for cars—have served to dramatize as never before the services of this Gallant Lady of the rails.

We car builders, specialists who supply cars to the railroads, are proud of our 1947 record... progress made in the face of handicaps to production encountered by all American industry.

In one year—from January 1 to December 31, 1947—production of freight cars for the Nation's railroads tripled.

It is a dramatic story. It is a story of voluntary cooperation between three great industries—the railroads themselves, the steel industry and the car builders—sitting down in collaboration with a government agency—the Office of Defense Transportation—and developing without controls or compulsion an expanded production schedule.

It is the old story of progress that comes from American competitive enterprise at work.

The result: A three-fold increase in production of cars for our Nation's carriers!

This is the more remarkable because car building is not like other industries. We did not come out of the war with great backlogs of orders upon which to begin post-war reconversion.

One-third of the railroads, carrying heavy new expenses and increased wages, were operating in the red in 1946, and the earnings of others were precariously low. They were unable to rehabilitate their freight car fleet as they wished. They applied for rate increases, but these were delayed.

Finally the log jam was broken, in part. Some relief was granted by the I.C.C. Volume orders were placed for new freight cars.

Car builders then went to work filling these orders. But cars take steel—more than 15 tons of rolled steel alone per car. And the steel industry, too, was having its troubles supplying the tremendous demands of America, plus export steel to help rehabilitate other nations. Even an expanded steel production could not supply all of the need. The freight car builders could not get all of the steel required, any more than other industries.

The American formula is working, however. Conference after conference has been held between these three great competitive industries—steel, railroads, and car builders—to work out a voluntary program of increased freight car production. The ODT and a Senate Committee have fostered this voluntary program, with the authorization of the Department of Justice.

In January, 1947, the car builders produced 2,265 cars for domestic use. Steadily the total has risen. In December, 7,661 cars were delivered, more than three times the January total; and the railroads themselves in December finished 2,162 cars, a total for the month of 9,823.

Thus, during the year, 68,507 new freight cars were added to the Nation's fleet.

And during the same period the car builders completed export orders, taken before large scale domestic orders began to come in, of 27,721 cars—a grand total for the year of 96,228 cars—the highest production since 1925.

Our sights are trained to higher levels for the future

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Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price \$6.00 for one year U. S. and Canada. Single copies, 50 cents each. Vol. 124, No. 3.

RAILWAY AGE

With which are incorporated the Railway Review, the Railway Gazette, and the Railway-Age Gazette. Name registered in U. S. Patent Office.

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NEW DEVICES

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REVENUES AND EXPENSES

PUBLISHED EACH SATURDAY BY THE SIMMONS-BOARDMAN PUBLISHING CORPORATION, 1309 NOBLE STREET, PHILADELPHIA 23, PA., WITH EDITORIAL AND EXECUTIVE OFFICES AT 30 CHURCH STREET, NEW YORK 7, N. Y., AND 105 W. ADAMS STREET, CHICAGO 3, ILL.

WASHINGTON 4, D. C.: 1081 NATIONAL PRESS BUILDING—CLEVELAND 13, TERMINAL TOWER—SEATTLE 1: 1033 HENRY BUILDING—SAN FRANCISCO 4: 300 MONTGOMERY STREET, ROOMS 805-806—LOS ANGELES 14: 530

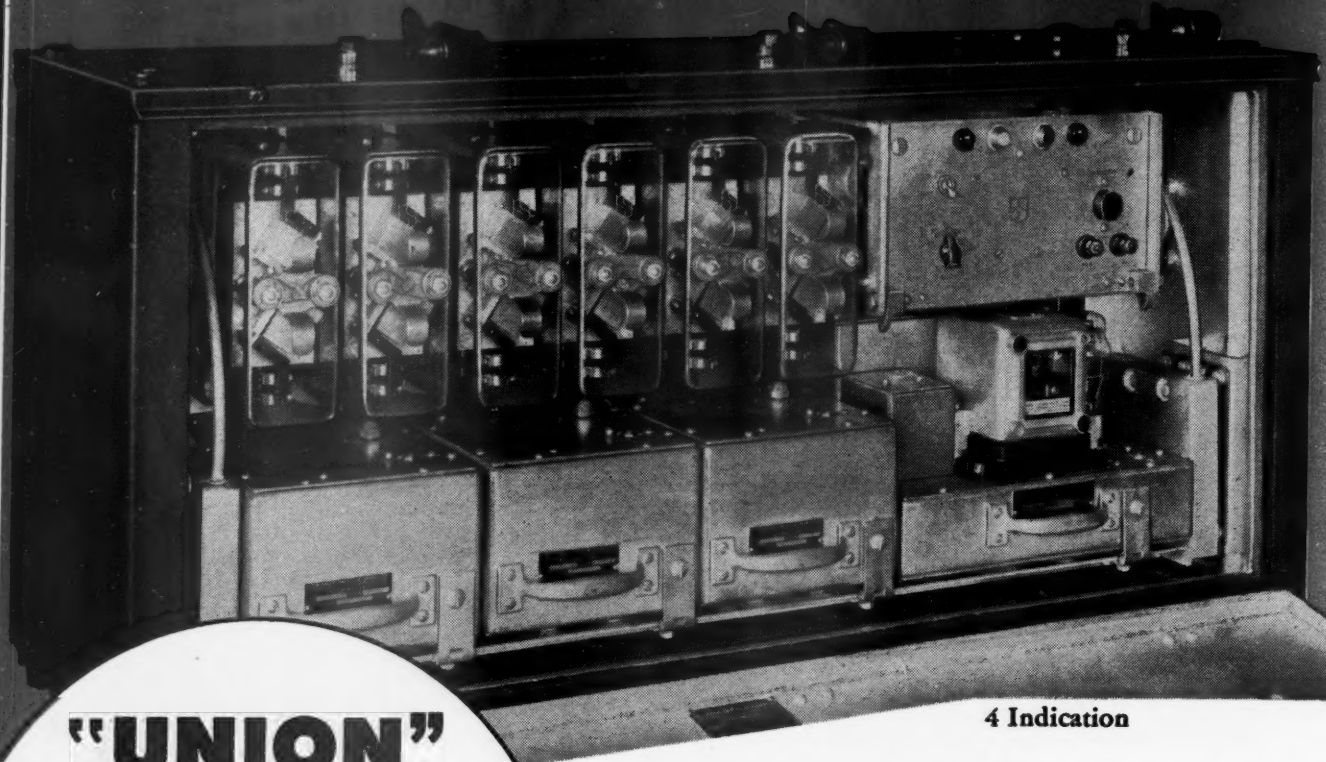
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Railway Age is a member of Associated Business Papers (A. B. P.) and Audit Bureau of Circulation (A. B. C.), and is indexed by the Industrial Arts Index and by the Engineering Index Service. PRINTED IN U. S. A.



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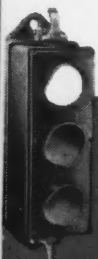
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WEEK AT A GLANCE

SENDING GOOD MONEY AFTER BAD: During the current fiscal year ending next June 30, the Inland Waterways Corporation, operator of the Federal Barge Lines, will have sold the last of its holdings of government securities, thus precluding the financing of further deficits in that manner. But liquidation of the corporation is not proposed. On the contrary, President Truman's budget for the fiscal year 1949 recommends a \$3 million appropriation for purchase by the Department of Commerce of additional I. W. C. stock in which the government has already sunk \$12 million. The barge lines have incurred annual operating losses regularly since 1939, but I. W. C.'s budget presentation promised a fiscal '49 net of more than a million dollars if the new capital is subscribed. How similar estimates of the past have been too optimistic is pointed up in our news report of I. W. C.'s present plight.

FARICY SCORES: President William T. Faricy of the Association of American Railroads recently spoke informally to a group of business paper editors; and the favorable impression he made is discussed in this issue's leading editorial. Frank answers to the editors' uninhibited questions reflected his optimism with respect to the railroad outlook, but included no Pollyanna predictions. He took care not to leave the impression that adequate and dependable service is to come about automatically—if public policy fails to deal justly and realistically with the railroads. And he showed his understanding that, to "win friends and influence people" in behalf of the railroads, hopefulness combined with an appeal to the public's self interest is needed. The industry is fortunate to have such leadership in Washington.

MORE SUBSIDIES: President Truman's \$39.7 billion budget for the fiscal year ending June 30, 1949, includes proposed appropriations of \$452 million for federal-aid "post-war highways," \$191 million for rivers and harbors, and some \$129 million for operation of the "federal airways system" and the federal-aid airport program. In the transportation field, the President's budget message said, the government must not only regulate carriers; it "must provide basic facilities and services on an expanded scale for highway, air and water transport." Meanwhile, Mr. Truman's annual economic report recognized how the railroads pay their own way when it said that national policies "should recognize the need for protecting the credit of the railroads." How the policy of subsidizing railroad competitors is to accord such recognition, the President did not say.

INTERPRETED OUT OF THE AIR: The Civil Aeronautics Board's restrictive interpretations of the Civil Aeronautics Act, which have prevented railroads from developing coordinated air services, has now caused Santa Fe Skyway, subsidiary of the Santa Fe, to abandon its air-freight operations. The decision to withdraw came after C. A. B. denied Skyway the exemption (granted to other non-certificated cargo carriers) under the board's economic regulations, which would have permitted it to operate as common carrier of air freight pending action on its application for a certificate of convenience and necessity. A news story herein reports President H. R. Lake's explanation

of Skyway's decision to abandon hope of carrying on in the face of C. A. B.'s "obviously unfriendly attitude." Meanwhile President Truman's Air Policy Commission has said that surface carriers should not be prevented from setting up coordinated air services "simply because they are surface carriers."

NEW WESTERN MARYLAND HEAD: Eugene S. Williams, who had been vice-president and general counsel of the Western Maryland, is that road's new president and chairman. On January 1 he succeeded Charles W. Brown who held the presidency since 1934, and the chairmanship also since 1938. President-Chairman Williams, now in his 58th year, came up through the W. M. legal department which he entered in 1923 as commerce counsel. Sketches of the Williams and Brown careers are published in a feature article on page 45. Though retiring from active service, Mr. Brown will remain a member of the W. M. board of directors.

THE LAW AND RAIL LABOR: A comprehensive outline of the history and present status of government intervention in railway labor relations was presented by Executive Director Daniel P. Loomis of the Association of Western Railways in a recent address to the Chicago Chapter of the Association of Interstate Commerce Practitioners. A feature article adapted from the address appears on page 36.

N. Y. C. AGRICULTURAL TRAINS: For more than three decades the New York Central has operated agricultural demonstration trains with a long-range objective of increasing the prosperity of farm communities along its line. The latest was 1947's "Indiana Farm and Home Special," set up in cooperation with Purdue University. The program is the subject of one of this issue's feature articles, which includes a list of the 58 trains operated since the demonstrations were started by the "New York Apple Advertising Train" of 1914.

DEVELOPMENT OF HOPPER: The development of the hopper car, as highlighted by nine examples showing trends throughout the steel-car era, is discussed by George A. Suckfield in a feature article on page 41. The Pressed Steel Car Company's consulting engineer also looks into the future, predicting that tomorrow's favored hopper will be a steel car of welded design, with better riding trucks and more efficient brakes. Use of low-alloy high-tensile steel will keep weight to the minimum that will assure reasonable service life, particularly in parts subject to combined action of abrasion and corrosion.

SOMETHING NEW IN BRIDGE PIERS: In the recent reconstruction of its double-track deck plate-girder bridge over the Twelve-Mile river near St. Catherine, Ont., the Canadian National adopted a highly unusual design for the substructure. The plan included a combination of steel piles and Prepack concrete which "streamlined" the reconstruction on the existing alignment without falsework or traffic delays. Consulting Engineer Charles P. Disney of Toronto tells how it was done in one of this issue's illustrated feature articles.



5 MILLION MILES OF MOUNTAIN HAULING—

AVAILABILITY 88.4%

If you're looking for day-in and day-out dependability—for maintenance costs that will make even the toughest "super" face life with a smile—then make sure your next freight locomotives bear the General Motors name plate.

Consider, for a moment, the outstanding performance of General Motors Diesel freight locomotives

on the Denver & Rio Grande Western—a line that provides a good stiff test of a locomotive's brute strength and stamina.

In rugged service—hauling heavy freight up mountains and braking it down grades. Twelve General Motors freight Diesels show an average availability record of 88.4%. They have covered a total

of 5,246,815 miles since 1942 with an average monthly mileage per locomotive of 9,254. Three other General Motors locomotives are amassing similar records in combined freight and passenger service.

Records like these are potent reasons why railroad men everywhere have made General Motors Diesels the synonym for "tops" in the freight-haulage field, as well as in passenger and switching service.



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MR. FARICY MEETS THE PRESS

William T. Faricy, president of the Association of American Railroads, spoke informally to a group of business paper editors including representatives of this paper, in Washington on January 9, and gave frank answers to their uninhibited questions. It was a heartening experience for an observer zealous that railway management should both deserve and enjoy a reputation for competence and candor, especially in such an all-important arena as Washington.

The session was "off the record"—so a complete report of what took place cannot be published. No confidence will be violated, however, in disclosing that the A. A. R. president informed his audience that there is little evidence to support any anxiety that the railroads of this country are going to suffer the dismal fate of socialization, which has overtaken transportation practically everywhere else in the world. He gave four reasons to support this belief, in substance, as follows:

(1) The American people, as shown in annual surveys of public opinion made for the A. A. R., evidence a growing opposition to railway socialization. They do not like government-operated railroads, because they still recall the unsatisfactory service the industry gave under government management in World War I, in comparison to the much more effective performance under private management in the recent war. They recall, too,

that government operation in World War I cost the taxpayers \$2 million daily despite substantial freight rate increases, while private operation in World War II—by contrast—contributed \$3 million daily in taxes, without increased freight rates.

(2) Public preference for private enterprise, as a general principle—in opposition to socialism—is firmly rooted, and is growing in intensity. The American people realize that, if the railroads could be captured by the socialists, not only other agencies of transportation, but suppliers of materials to the railroads—and, probably, other basic industries as well—would quickly succumb.

(3) People are impressed with the remarkable post-war performance of the railroads despite trying shortages, and have concluded from this experience that the nation is not likely to have any transportation job to do which this industry cannot promptly and efficiently perform, once it overcomes present handicaps—which are more irritating than disastrous. Even *with* the 1947 deficiency in freight cars, the railroads moved more carloads of freight than they did when war traffic was at its peak. They hauled more coal than at any time in history. They moved the country's biggest wheat crop, allaying widespread fears that the weather would destroy much of the grain before cars could be found to take it to cover. The goal of 10,000 new freight cars monthly was almost attained in December and, from now on, freight

car production will be rapidly increased to the new goal of 14,000.

Population increased beyond all expectations during the past decade and, for this and other reasons, the nation has attained a permanently higher level of production and traffic, far surpassing the highest pre-war peaks. This development assures the railroads of a substantial freight traffic and, at the same time, makes it necessary that the industry be provided with the means for dealing with an enlarged volume of business.

(4) By its authorization of two interim freight rate increases within two months, the Interstate Commerce Commission has evidenced that it is alert to the need of the railways for revenues, adequate to attract to them the additional capital they will need to keep their facilities abreast of traffic demands. The rate increases, so far, are still insufficient—only 30 per cent over 1939, including the two interim increases, compared to a rise in wages of 70 per cent and of 88 per cent in the cost of materials. There seems to be good reason, however, for the belief and hope that the Interstate Commerce Commission will permit the increases the railroads have sought.

Higher rates for railroad service—at least those so far asked—run little danger of “pricing the railroads out of the market”: (a) because the proposed increases were critically examined in advance by competent traffic officers who are fully alert to this potential danger; (b) because competing agencies of transport have suffered from rising costs similar to those the railways have experienced; and (c), paradoxically, present rate increases, because they provide the means for equipping the railroads with modern tools, are the surest road to competitively low rates over the long term.

No Pollyanna Predictions

Mr. Faricy made no Pollyanna predictions. With all his optimism, he took care not to leave the impression that adequate and dependable railroad service is going to come about automatically—if public policy fails to deal justly and realistically with the railroads. He predicated his cheerfulness on indications that public policy is going to be wiser and more far-sighted than in the past. He freely admitted that “another round of wage increases” would be disastrous to his optimistic expectations.

Still, he insisted, the country needs a lot of railroad service, for either peace or war. It now recognizes this need more keenly, perhaps, than ever before. It is increasingly determined that this service must be provided by private enterprise. A reasonable public policy toward rates and other conditions necessary for profitable railroad operation is the only course which will promote the attainment of *both* the foregoing objectives—so

what could be more logical than to conclude that this is the course which will, in fact, be followed? While thus setting forth the reasons for his hopefulness, the speaker was, incidentally, enlisting the support of his audience for the policies which are needed to justify such optimism.

Wise Leadership

The A. A. R. president showed his understanding that, to “win friends and influence people” in behalf of the railroads, hopefulness combined with an appeal to the public's self interest is needed. The railroads' most perplexing problems are political and, hence, require public participation in their solution. A good scolding of the public for the political mistreatment of the industry could doubtless be sustained from the standpoint of abstract justice—or an appeal might reasonably be made to popular sympathy, drawing attention to the wounds the industry has sustained at the hands of politics. However fair such approaches might be, the response to them is usually that of the rich man who was moved to pity at the painful poverty of a solicitor for alms. What he said was, “Take this fellow away; he is breaking my heart.”

A railroad spokesman who paints too rosy a picture not only misleads his auditors but fails to win public support to policies without which optimism is unjustified. One who sings the blues too loudly alienates his audience and likewise fails to enlist the public support from which, alone, remedial action can come. The railroad industry is fortunate in having leadership which demonstrates so conclusively its knowledge and ability to hold the effective course midway between these two extremes.

SOMETHING DIFFERENT IN DEEP-WATER BRIDGE PIERS

Any improvement in bridge pier design that will simplify construction, reduce substructure and superstructure costs, or give added stability and assurance against undermining and scour, should be of the greatest interest to railway bridge engineers. Accordingly, an article in this issue, describing the installation of a new type of pier construction incorporating all of these characteristics, will be of more than ordinary interest, and may well influence the design of piers for many important railway bridges in the future where deep underwater foundations are involved.

Constructed essentially of steel H-section piles put down to firm bearing at any practicable depth, and unified below the water level by means of

an intruded concrete envelope of minimum cross section, placed entirely from above the water level, the advantages of the design will be readily evident.

Furthermore, combined with other features which permit anchoring the H-piles into the rock bottom, and at depths exceeding the practical limitations of open or pneumatic caissons, without the hazards and large costs involved in such construction, the new design would appear to be the answer to many a bridge builder's prayer.

In building to unusual underwater depths, a steel skeleton frame, with enclosing metal walls, is first sunk to firm engagement with the river or other water bed. Following this, steel shells or tubes of the diameter desired, and in number equal to the number of piles required, are driven to rock, after which, as a group, they are monolithically encased below water level with an intruded concrete placed from above the water level. Subsequently the pipe shells are cleaned out, and an H-pile, with welded-on extensions as necessary, is lowered into each shell to rock bearing, and the remaining open area in the shells is then filled with concrete. When desired to anchor the piles into the rock, calyx core drills are used, working down through the open shells before the H-piles are placed. Steel reinforcing can be lowered into the steel shells and concrete placed to form reinforced concrete piles, dispensing with the H-sections.

The originator of these features, Charles P. Disney, retired bridge engineer of the Central region of the Canadian National, is well known to American bridge builders, if only because of his penchant for breaking precedents, his many bold bridge design features, and often known contempt for accepted practices and those who seem to follow them blindly. In the light of his new design, he is convinced that pneumatic caissons, open caissons, tremie concrete and cofferdams are completely outmoded for building the substructure of any bridge, including such bridges as that over San Francisco Bay and the Quebec bridge. Furthermore, he estimates that savings of 40 to 70 per cent in the cost of bridge foundations can be effected by using the new design, compared with conventional methods, especially where such methods call for expensive pneumatic caissons or cofferdams.

Important additional economies, he says, can be effected in bridge design due to the fact that the new type pier can be built in practically any depth of water likely to be encountered, at minimum expense, which will permit the engineer to lay out his bridge so that he can obtain maximum economy in superstructure design. These are far-reaching claims which, if substantiated in practice, could well revolutionize bridge construction, especially where deep underwater foundations are required.

DIESEL-ELECTRIC DISCUSSION GROUPS

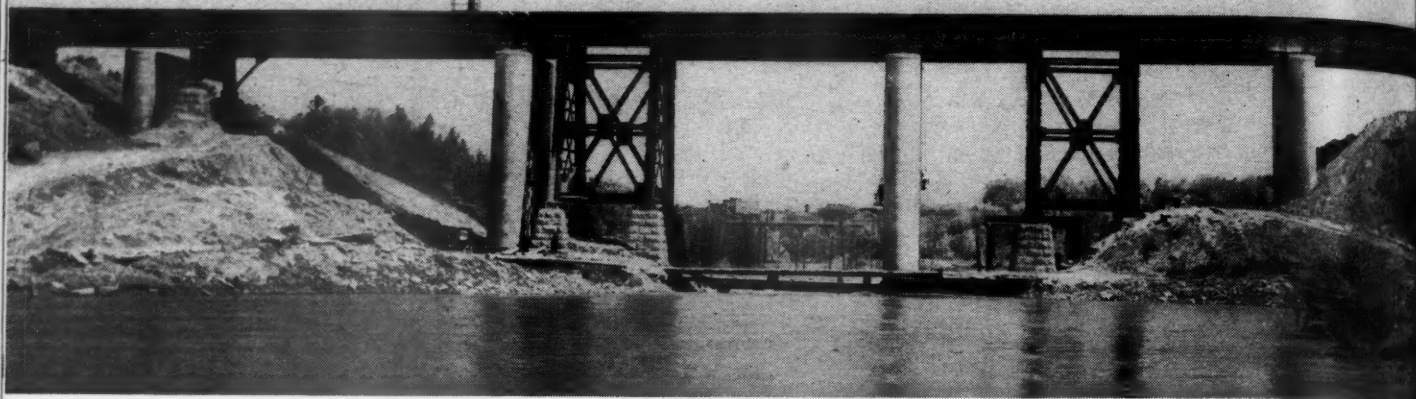
Because of the steady expansion of the use of Diesel-electric locomotives, there is an increasing demand on the part of those in charge of operation, servicing and maintenance, for up-to-the-minute information about how best to handle the multiplicity of details involved in these operations—details that naturally differ radically in many respects from those associated with steam locomotives.

The need for information on maintenance methods in particular is growing rapidly due to the large number of locomotives that have been in service several years. Evidences of these demands face us on every side. Requests come to our publications, for instance, for detailed and specific information; meetings committees of railroad clubs and associations are urged to put on special programs and the subject crops up on all sorts of occasions.

The greater part of an all-day meeting of the officers and executive committee of the Locomotive Maintenance Officers' Association, building this year's program, was recently devoted to a consideration of Diesel-electric locomotives, including equipment details, servicing and maintenance. Apprentice training departments and supervisory training groups are being subjected to this same pressure.

A significant development to satisfy this demand has been the formation of such groups as the Southeastern Railway Diesel Club, which recently celebrated its first anniversary. Bi-monthly all-day meetings of this club are held, with recess for luncheon. The morning sessions are utilized largely for the presentation of papers or reports by railroad men and representatives of the suppliers. The afternoon sessions are of a more general nature, in order to afford the members an opportunity to secure information on specific problems with which they are confronted. To induce free and open discussion as few formalities are observed as possible. In this way men who would not speak at more formal meetings are encouraged to take part and they make many worth-while comments and suggestions.

That practical results are being secured from these meetings is indicated by the support that the chief mechanical officers in the Southeast are giving by arranging for their associates to attend them. The membership in the first year was 281 and the average attendance at the meetings has been much greater than anticipated. Possibly there are other centers where such groups could be organized and function to advantage, without interfering with the well-established but more inclusive railway clubs, which can hardly be expected to discuss such questions with any frequency.



This view, looking north, or downstream, at the bridge across Twelve-Mile river, was taken after the piers had been constructed but before the spans had been shifted

SOMETHING NEW IN BRIDGE-PIER DESIGN

Combination of steel piles and Prepakt concrete "streamlines" the reconstruction of important deck plate-girder structure on existing alignment without falsework or traffic delays

By **CHARLES P. DISNEY—M.E.I.C.**
Consulting Engineer, Toronto, Ont.

In the recent reconstruction of a double-track deck plate-girder main-line bridge the Canadian National adopted a highly unusual design for the substructure, which proved to have important advantages. In this design each pier consists essentially of steel piles grouped in accordance with design requirements and extending nearly the full height of the pier. By integral bonding of the steel piles within Prepakt concrete a monolithic pier shaft is developed which has such strength and lateral rigidity as to permit of a relatively slender pier of uniform section. By using this design for the piers the construction time and the cost of the work were substantially less than would have been the case had conventional methods been used.

Bridge Spans Tailrace

Adding further to the interest attached to this project is the fact that an important additional saving in both cost and time was realized by reconstructing the bridge on its original alignment, with the substructure work being done entirely beneath the track level and without interfering with train movements over the bridge. In this connection the pier design chosen was the essential factor in expediting the work and enabling it to be executed on the existing alignment. The superstructure work involved only the shifting of the existing spans longitudinally into position on the new substructures, with the addition of only one short new span to increase the length.

The structure involved in this project is located on the double-track main-line of the Canadian National between Hamilton, Ont., and Niagara Falls, where it crosses the 100 ft. deep valley of Twelve-Mile river

which serves as the tailrace for a large hydro-electric power plant near St. Catharines, Ont. The old bridge was composed of six spans, each consisting of four lines of deck plate girders (two under each track), having a total length of 416 ft. Three of the spans were 100 ft. long, two were tower spans 25 ft. in length, and the sixth was a span 65 ft. long. The substructure consisted of masonry abutments, two steel towers and a steel bent, all carried on masonry pedestals.

The river which is spanned by this bridge serves as the tailrace for the \$7,700,000 DeCew hydro-electric generating plant where power is developed under a head of 254 ft. The output of 70,000 hp. of electrical energy was found insufficient to meet present industrial requirements and a new unit was therefore added to double the power output. This involved the removal of 3,000,000 cu. yd. of material to widen, straighten and deepen the river to provide for three times as much tailrace capacity, with the resultant imperative requirement for a new bridge of greater length and much deeper foundations.

To meet the new conditions at the bridge site without interrupting traffic, conventional methods would have necessitated the building of an entirely new structure either upstream or downstream of the existing bridge, which would also have involved the relocation of the approach tracks and their high embankments. This procedure would not only have been extremely costly but would also have seriously delayed the urgently required output of additional hydro-electric power.

A study of the unusual constructional and economic problems involved in this project led to the conclusion that a pier design, primarily originated and employed

by the writer to expedite and simplify the construction of bridges, particularly those involving difficult foundation and underwater problems, was even more advantageous in this particular instance as it not only provided the constructional advantages in cost and time inherent in the design but also eliminated the necessity for track realignment and the reconstruction of the bridge on a new site, as well as obviating interruption of traffic.

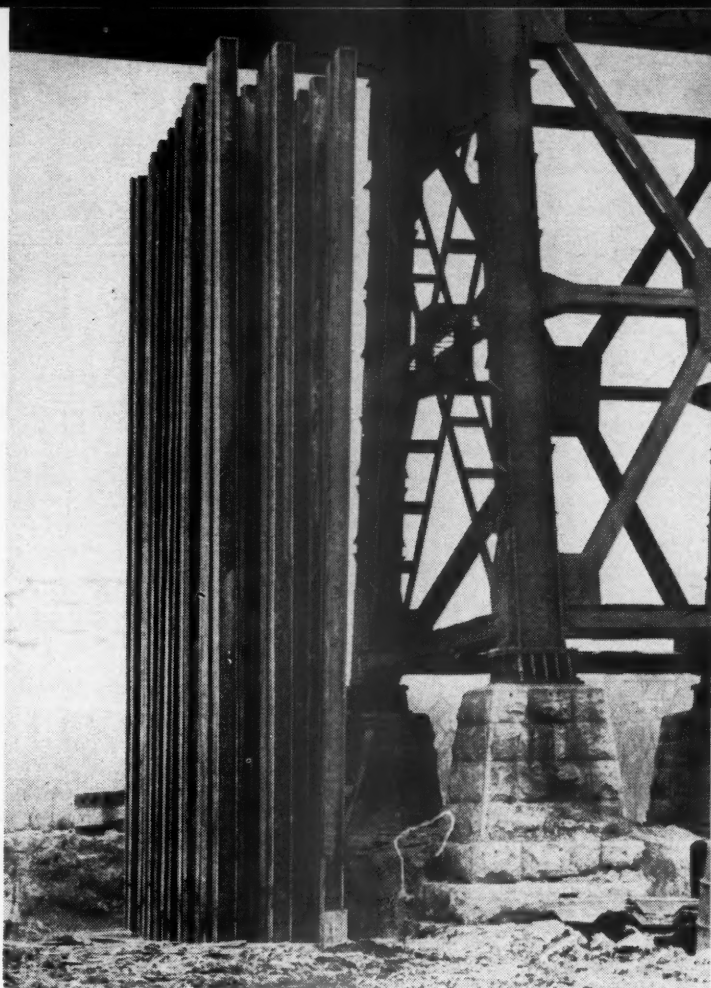
The existing superstructure, which was originally erected and put into service in 1902, had been well maintained and was fully satisfactory in condition and load-carrying capacity to meet the present-day requirements of high-speed heavy traffic on the line in question. Consequently, it was economically desirable that the steel superstructure be continued in service, and the design adopted was therefore predicated on the continued employment of the existing spans. Specifically the re-use of the three 100-ft. spans and the 65-ft. span gave the new bridge its required total length of 430 ft. 8 in. between the faces of backwalls, with the addition only of a new 57-ft. span.

Design of Substructure

The substructural layout was planned in such a way that it was possible to provide for the required increase in the total length of the bridge by relocating only one of the abutments, the other being retained unchanged for the new bridge. A new west abutment was built and four intermediate piers were constructed, designated from east to west as Piers 1 to 4, so spaced as to be constructed closely adjacent to the existing substructures.

The essential feature of the scheme adopted for the reconstruction of this bridge lay in the design of the new piers, which permitted them to be built to their final elevation from underneath the bridge without using the deck for construction purposes and in close proximity to the old piers without endangering the existing structure even though founded at depths much below the old footings. This type of pier consists essentially of H-section steel piles, grouped in accordance with design requirements, and monolithically encased within a pier shaft of Prepakt concrete, making the whole into a relatively slender column of uniform section having great bearing capacity. Briefly Prepakt concrete is formed by first filling the forms with compacted coarse aggregate and then consolidating the whole mass with a special cement-sand-water-admix grout which is forced to fill all the voids in the aggregate mass under pressure by pumped intrusion.

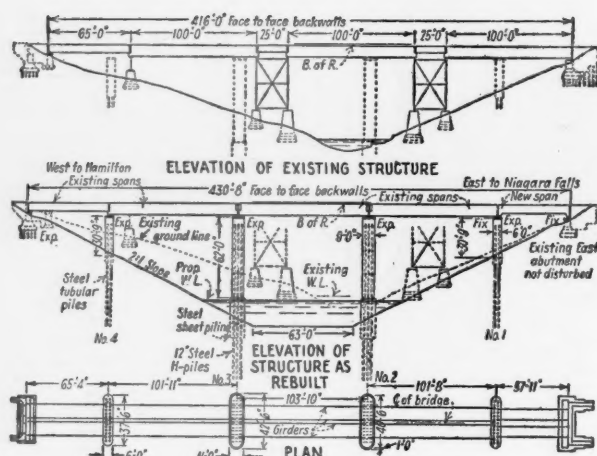
While it is not within the purpose or scope of this article to discuss the qualities or technique of Prepakt it is considered necessary, in order to ensure a full understanding of this important pier design, to mention at least briefly some of the characteristics of this kind of concrete for the benefit of those who may not already be familiar with it. In the course of some ten years of experience in the uses and applications of Prepakt in connection with a great many important bridge jobs, the author has found that this type of concrete has definite advantages as compared with ordinary concrete, such as substantially higher strength, particularly at later ages, assuming equal cement content; greater resistance to freez-



The steel H-piles in place for Pier 3. Note their proximity to the pedestals of existing steel tower

Pier 3, having been built in "reverse", before the concrete for the lower portion of the shaft and the footing was placed





This drawing shows essential details of the Twelve-Mile river bridge before and after it was reconstructed

ing and thawing; greatly-reduced drying shrinkage; absolute bond; greater resistance to cracking; and a higher degree of impermeability.

In addition to these and other advantageous factors its method of production lends itself particularly favorably to the type of pier construction used on this job, due to the fact that Prepakt concrete can be as readily made under water as in the air. It is my opinion that the fundamental fact that one cubic yard of Prepakt concrete actually contains one cubic yard of coarse aggregate is an advantageous factor which favorably influences all its properties as compared with ordinary concrete.

The two highest of the four piers (2 and 3) of the reconstructed bridge are both situated within the confines of the enlarged river as required by the expansion of the hydro-electric plant. They are of the same height, each being approximately 64½ ft. high, measured from the new water level to the top of the bridge seat. The location of Pier No. 2 actually positioned it in the extremely fast tailrace water which existed in the original more confined course of the river; and Pier No. 3 is located directly adjacent to one of the old steel towers at a point where the existing ground was to be excavated to a considerable depth in deepening the channel of the river. In fact, at this location the new channel is considerably below the level of the footings of the masonry pedestals supporting the old steel tower.

Design of Piers 2 and 3

While construction of both of these piers as located would have been out of the question for both structural and economic reasons by any other method except as designed, the type of pier adopted and the construction procedure employed enabled the work to be carried out expeditiously and relatively simply as will be described later.

Piers 2 and 3 are identical in design. Each of them embodies thirty-six 12-in. 65-lb. steel H-piles, arranged in three rows of 12 each. These piles were driven to rock and extended upward to the cut-off elevation which was approximately 6 ft. below the finished bridge seat. That portion of each pier extending

through the water and into firm material below the channel bed was enclosed in steel sheet-piling and filled with Prepakt concrete. From the top of the sheet-piling to the cut-off level of the steel piles, these piles were encased in Prepakt concrete in such a manner as to form a slender shaft of uniform section 9 ft. wide and 40 ft. 6 in. long, with rounded ends constructed on a 4-ft. 6-in. radius. Each shaft is topped by a heavily-reinforced cap, also of Prepakt concrete, which forms the bridge seat.

In constructing Pier No. 2, which, as already indicated, was located within the fast water of the existing river, the work involved six separate steps. The first of these consisted of driving steel sheet-piling in conformity with the designed perimeter of the underwater portion of the pier. This steel sheet-piling pier-base "form" was 11 ft. wide and 41½ ft. long and was driven about 15 ft. below the final grade line of the new channel. The sheet-piling was driven by a North-west crawler crane equipped with swinging leads and a steam hammer. The second step involved the excavation of river-bed material from within the steel sheet-piling by means of an orange-peel bucket operated by the crawler crane.

Driving the H-Piles

The third step in the construction of the pier was the driving of the H-piles by means of the crane and steam hammer. This work was done from underneath the bridge and the piles were spliced as necessary until driven to refusal with their upper ends above the normal water level. The average penetration below water level was 70 ft. In the fourth step additional lengths of H-piles were spliced by welding to those already driven, these lengths being such as to bring the piles up to the cut-off level. The piling forming the shaft of the pier was braced at intervals by welded steel angles.

In the fifth operation the steel sheet-piling pier-base "form", or cofferdam, was filled with coarse aggregate, thus expelling about 60 per cent of the water without pumping, assuming the compacted coarse aggregate to have a normal void content of approximately 40 per cent. The aggregate mass was then intruded with the special cement-sand-admix grout which, on account of its inherent immiscibility, forced the remaining water out as it rose within the "form", thus forming Prepakt concrete. Step number six was to construct a conventional form around the steel H-piles up to the bridge-seat elevation, place the reinforcing rods for the pier-cap, fill the whole with coarse aggregate and intrude the mass to complete the Prepakt shaft of the pier.

An unique feature in connection with the substructural work is the fact that Pier 3 had to be constructed in "reverse" as compared with usual practice. In other words the procedure in constructing this pier was to place the concrete for the upper portion of the pier shaft first and that for the lower portion, including the footing, last.

The procedure employed was dictated by the considerable depth to which this pier had to be carried below the existing ground level, which level was much higher than at Pier 2, and the further fact that the proximity of the footings for one of the existing steel towers would have imposed severe complications in



Derricks at work on the superstructure of the bridge. Note that, awaiting removal of the adjacent steel tower and its footings, the concrete for the lower part of Pier 3 (center) has not yet been placed

carrying out the excavating work. Steel sheet-piling was first driven to a depth of about 15 ft. below the final grade line of the channel, after which the steel H-piles for the pier were driven to refusal, being spliced as necessary to bring them to the cut-off elevation.

When this had been done and the angle bracing applied, a conventional form was constructed around the steel H-piling above the existing ground level and the Prepak for the pier was placed above that level.

Further work on Pier 3 was then held in abeyance until the superstructure had been landed on the new substructure, removing the load from the steel tower adjacent to this pier. When this had been done the excavation of the existing ground around the lower portions of the steel H-piles was carried down to the proposed new water level. As this work proceeded, steel bracing was applied to the piles to develop lateral rigidity at this stage. When the material inside the cofferdam had been excavated to the desired depth the concreting of the footing and shaft of the pier was completed by bringing the concrete up from the foundation to meet that which had been previously placed in the upper half of the pier.

As steel H-piles were not readily available for Piers 1 and 4 which, being located high up on the side slopes of the channel, are only about 31 ft. high above the ground, it was decided to use steel tubular piles, which were on hand, encasing them above the ground line with Prepak concrete. These two piers are identical and in each of them there were placed 26 steel tubular piles, arranged in two rows of 13 each. All of these piles are 14 in. in diameter except the two piles on the center line of each pier which are of the 12-in. size. These piers are 37 ft. 6 in. long and 6 ft. wide and have semi-circular ends constructed on radii of 3 ft. Like Piers 2 and 3 they are topped by heavily-reinforced concrete caps 6 ft. in depth.

The tubular piles were also driven by the crawler-mounted crane operating under the bridge, and were driven in sections which were welded to each other to obtain piles of the necessary length, about 80 ft. The procedure involved in constructing these piers was similar to that employed for Piers 2 and 3 except that it was not necessary to drive steel sheet-piling for the footings.

As stated the superstructure work consisted of shifting the existing 100-ft. spans and the 65-ft. span into position on the new substructures and installing the new 57-ft. span. In this work the superstructure for each track was handled by bridge derricks operating from the other track. Only about six actual working days would have been required to complete the superstructural work for each track had not a strike of derrick runners held up the work seriously.

Employing the methods described in this article the work was accomplished at a cost of approximately \$350,000, which represented a remarkable saving as compared with the estimated cost of \$1,300,000 which would have been required if a new bridge had been constructed on a different alignment. Furthermore, a very important aspect of the work was the time saved. Only eight months were required to do the substructure work, whereas it is estimated that 2½ years would otherwise have been needed. The relatively short time in which the job was completed permitted the enlarged hydro-electric power development to be completed and put into operation about two years earlier than would have been the case otherwise.

The quantities of materials used on this job included 2,932 cu. yd. of concrete, 27,323 lb. of reinforcing steel, 157,888 lb. of structural steel, 608,400 lb. of steel H-piling, 4,160 lin. ft. of steel tubular piles, and 112,630 lb. of steel sheet-piling.

The type of pier used was devised by the writer who also originated the scheme of operation and the bridge design for its application as the solution to the unusual circumstances and problems encountered. The work was carried out under the general supervision of E. R. Lgoie, chief engineer, Central region, Canadian National, and under the direct supervision of K. Huffman, construction engineer of the Central region. The substructure work was performed under contract by C. A. Pitts & Co. in conjunction with the Prepak Concrete Company, while all work involving the superstructure was carried out by the Hamilton Bridge Company. As the existing bridge was quite ample and satisfactory for the railway's present and future needs, the project was wholly necessitated by the DeCew power development, and the work was therefore executed at the expense of the Hydro-Electric Power Commission of Ontario.

THE LAW AND RAILWAY LABOR

An outline of the history and present status of government intervention in railway labor relations

By **DANIEL P. LOOMIS**

Executive Director, Association of Western Railways

Collective bargaining in the railroad industry has a long history, antedating its development in most other industries. There are now 22 so-called "standard railroad labor organizations." In addition, there are several organizations which represent a varying number of workers on various railroads.

The Railway Unions

The five standard organizations which represent operating employees are the Brotherhood of Locomotive Engineers, with an approximate membership of 76,000; the Order of Railway Conductors, with about 50,000; the Brotherhood of Locomotive Firemen & Enginemen, with about 95,000; the Brotherhood of Railroad Trainmen, with about 200,000 and the Switchmen's Union of North America, with about 10,000.

In the field of nonoperating workers, the largest union is the Brotherhood of Railway & Steamship Clerks, Freight Handlers, Express & Station Employees, with a membership of nearly 300,000. The other organizations in this field are the Brotherhood of Maintenance of Way Employees, with about 150,000; International Association of Machinists, 85,000; International Brotherhood of Boilermakers, Iron Ship Builders & Helpers, 25,000; International Brotherhood of Blacksmiths, Drop Forgers & Helpers, 20,000; Sheet Metal Workers' International Association, with 12,000; International Brotherhood of Electrical Workers, 12,000; Brotherhood of Railway Carmen, with 80,000; International Brotherhood of Firemen & Oilers, with 20,000; Brotherhood of Railroad Signalmen of America, with 13,000; Order of Railroad Telegraphers, 50,000; American Train Dispatchers' Association, with 3,500; and Railroad Yardmasters of America, with 3,500. No figures for membership are available as to the National Organization of Masters, Mates & Pilots of America, National Marine Engineers' Beneficial Association, International Longshoremen's Association, or Hotel & Restaurant Employees' International Alliance, and Bartenders' International League of America, which represents dining car waiters, chefs and cooks.

Seven of the 22 organizations, those in the shop craft group, consisting of the Machinists, Boilermakers, Blacksmiths, Sheet Metal Workers, Electrical Workers, Carmen, and Firemen & Oilers, comprise the Railway Employees' Department of the American Federation of Labor.

The Clerks, Maintenance of Way Employees, Sig-

nalmen, Telegraphers, Masters, Mates & Pilots, Longshoremen, Hotel & Restaurant Employees, and Yardmasters, are affiliated with the American Federation of Labor. The other organizations are independent, except the Marine Engineers, which is affiliated with the CIO. . . . Twenty of these organizations, all except the Engineers and Trainmen, belong to the Railway Labor Executives' Association, the principle function of which is to handle the interests of its members in matters of a legislative nature.

Wages and working conditions are negotiated directly by local representatives of the respective organizations with individual railroad companies. When national concerted movements are in progress, negotiations are first handled on the individual railroads, and then proceed to further negotiations between committees representing the national organizations and committees of railroad officers authorized by the individual railroads to represent them.

Nonoperating railroad employees and operating employees engaged in yard service are paid on an hourly, daily, weekly or monthly basis, as in other industries. Operating employees engaged in road service have the so-called dual basis of pay. They are paid on the basis of the miles they run, but, if it takes longer than a certain time to run the miles paid for, they receive overtime in addition to payment for the mileage made. For example, the standard day's work in road freight service is 8 hours or less, 100 miles or less. Should a road crew make 100 miles in 8 hours it would receive 8 hours pay. However, should the 100 miles take 9 hours, the crew would be paid a day's pay for 100 miles or 8 hours, and an additional hour at time and one-half for the ninth hour. Should the crew run 100 miles in 6 hours, it would receive a day's pay. Should it run 125 miles in 10 hours, it would receive 10 hours pay.

Hourly Earnings

For the first 8 months of 1947, the average hourly earnings from straight time and overtime of the operating employees, i.e., engineers, firemen, conductors, brakemen, switchmen, hostlers and hostler helpers, were \$1.569. Their average weekly earnings were \$76.03 and their estimated average annual earnings would be \$3,964. These figures are without giving any effect to the 15½-cents wage increase recently agreed to with the Conductors and Trainmen. No settlement has yet been made with the Engineers', Firemen's or Switchmen's Unions. Should the 15½-cents be applied to all of these employees, their hourly earnings would become \$1.764; their weekly

This article is adapted from an address by Mr. Loomis on January 9 to the Chicago Chapter of the Association of Interstate Commerce Practitioners.

earnings \$85.46; and their annual earnings \$4,456.

As to nonoperating employees, their average hourly earnings in August 1947 were \$1.044; their weekly earnings \$51.48; and their estimated annual earnings \$2,717.00. With the addition of the wage increase of 15½-cents, which was awarded these employees by an arbitration board early in September, 1947, their hourly earnings would become \$1.204; their weekly earnings \$59.35; and their estimated annual earnings \$3,129.

With the arbitration board's award to the nonoperating employees and the settlement reached across the table with the Conductors and Trainmen, the only outstanding case is that with the Engineers', Firemen's and Switchmen's Unions covering both wages and rules. These three organizations declined to accept the settlement which the Conductors and Trainmen agreed to and the case is now in mediation under the auspices of the National Mediation Board.

First Federal Legislation in '88

The first federal legislation dealing with railway labor was passed by the Congress in 1888, just one year after the passage of the Interstate Commerce Act. This 1888 act contained provisions for voluntary arbitration and also provided for the appointment of investigating commissions when the President deemed it necessary to prevent an interruption to interstate commerce. The investigating commission was to attempt to ascertain the causes of the dispute and to make recommendations for its settlement. Its report was to be published and public opinion was relied on to bring about its acceptance. Both arbitration boards and investigating commissions were given power to subpoena witnesses, receive testimony and examine records.

The arbitration provisions of this act were never used. The investigation provisions were used in one strike of large proportions, the Pullman strike of 1894. The commission, in its report in that case, suggested a permanent commission of three members which would have, in the railway labor field, power ssimilar to those of the Interstate Commerce Commission in the field of railway rates. Pending investigation by it, no railroad could discharge an employee save for certain specified reasons nor could an employee aid or abet a strike or boycott against a railroad. The railroads would be compelled to obey its decisions. Some sort of legislation was recommended with a view to encouraging the labor organizations to become incorporated with resultant legal responsibility.

The Act of 1888 was the foundation stone upon which all subsequent legislation has been built and it was tremendously important as the initial federal legislation on the subject. Its essential elements remain in the law to this day: voluntary arbitration; investigation and fact finding by a Presidential board in case of a strike emergency; reliance upon the force of public opinion after such investigation. After sixty years of experimentation, the only real significant change in the law, aside from the creation of the National Railroad Adjustment Board to handle grievances, is that under the present Railway Labor Act, an award of an arbitration board may be enforced in court whereas under the 1888 act such an award had

no sanction other than the force of public opinion.

The next act was the so-called Erdman Act of 1898, which provided for conciliation and, if that failed, the conciliators were to attempt to secure an agreement for voluntary arbitration. Under this act, such an arbitration award could be enforced in the courts but in only one arbitration case was there an appeal to the courts. The appeal took over fourteen months and the parties finally settled the case out of court. In most cases thereafter the parties agreed to waive the right of appeal.

The conciliation provisions of the Act were quite successful, due in large part to the strength and character of the conciliators, Commissioner of Labor Neill and Judge Knapp of the Interstate Commerce Commission, and later of the Commerce Court. They developed a mediation procedure which has largely been followed down to the present time. They met first one party and then the other, separately, and never brought the parties together until they had each made such concessions as plainly indicated to the mediators that the dispute could be adjusted. The plan had the practical advantage that it worked and produced settlements, although it was sometimes subject to the valid objection that it made expediency rather than the ultimate merits of the dispute the essential basis of settlement.

The next change in the law was the Newlands Act in 1913, which set up a permanent mediation agency known as the United States Board of Mediation and Conciliation. The Act contained provisions for voluntary arbitration.

In 1916 came the historic dispute over the length of the basic day's work. The brotherhoods sought an eight-hour day without reduction in pay and declined to arbitrate the matter. Mediation failed and a strike was set for Labor Day, September 4, 1916. President Wilson intervened and proposed that the principle of the eight-hour day be accepted and that he appoint a commission to investigate the demand for time-and-one-half pay for overtime. The employees accepted his proposal but the managements objected to accepting the eight-hour day before an investigation was made.

The 8-Hour-Day Law

The President appeared before Congress on August 29, 1916, and asked passage of a law embodying his proposal. The bill passed the house on September 1, the Senate on September 2, and was signed by the President on September 3. It became known as the Adamson Law.

The railroads attacked its constitutionality and were successful in the lower courts. While the case was pending in the Supreme Court the organizations again set a strike date in March, 1917. A settlement was finally reached under which the employees received what the Adamson Act provided. On the same day as settlement, the Supreme Court, by a 5 to 4 vote, upheld the constitutionality of the law. The case was *Wilson v. New*, 243 U.S. 332, and the court in effect held that Congress had the power compulsorily to arbitrate the dispute.

During the period of federal control in World War I, wage and rules matters were handled by the Director General of Railroads who created a board of wages

and working conditions to study such matters and make recommendations to him.

The Transportation Act of 1920 established the United States Railroad Labor Board, consisting of nine members, three from management, three from labor and three public members, which was empowered to hear any dispute involving demands for changes in wages, rules or working conditions. There was no provision for enforcement of its decisions except the pressure of public opinion. In 1920 substantial wage increases were awarded by the board but in 1921 and again in 1922 wage reductions were awarded, due to the severe business recession and decrease in the cost of living. The second reduction brought about the shop crafts strike in July, 1922. The board, recognizing that the strike was against its own decision, announced that while employees were within their rights in leaving the service, new employees were also within their rights in filling the vacancies and were entitled to protection and to form new organizations as representatives of such employees before the Labor Board.

End of Railroad Labor Board

President Harding intervened and various unsuccessful attempts at settlement were made. On September 1 the Attorney General secured a sweeping injunction restraining all railroad employees from interfering in any way with the operation of railroad properties. The strike dragged along for some time but gradually died out. It was extremely costly to the employees, the carriers and the public. The carriers also in certain instances fought the board's decisions and as a result of agitation to change the law, the Railway Labor Act of 1926 was passed. This act was the result of the joint efforts of railway executives and railway labor leaders.

The act, to a large extent, was a combination of various provisions found in earlier legislation. A permanent board of mediation was established with power to mediate any dispute at the request of either party or on its own motion. If mediation failed, the board was to attempt to bring about voluntary arbitration. The act contained a new and important provision—that, if a dispute could not be settled by mediation and arbitration was not agreed to, the board should notify the President who was empowered to create a so-called "emergency board" to make an investigation and submit a report to him within 30 days of its creation. Following such report, there was an additional period of 30 days during which the parties were forbidden to make any change, except by agreement, in the conditions existing at the time the dispute arose. The act provided that boards of adjustment to dispose of grievances and contract interpretation cases should be created by agreement on either a national, regional or company or system basis and undertook to make an agreement to establish such boards obligatory, but no means were provided to enforce this obligation.

The act was amended in 1934 in the form in which it stands today. The amended act provides safeguards to the right of employees to organize and prohibits any interference or coercion on the part of the carriers in the designation of employee representatives. It

provides that the majority of any class, or classes, of employees shall have the right to determine who shall be the representative of such class, or classes. The Mediation Board is empowered to hold elections to determine who are the representatives of the employees and the carriers are required, upon certification by the board as to who is such representative, to treat with the representative so certified. So-called "yellow dog" contracts were outlawed.

The Adjustment-Board Set-Up

The amended act also created the National Railroad Adjustment Board, the membership of which is divided equally between carrier and employer representatives. It is divided into four divisions, each having jurisdiction over disputes involving certain particular crafts or classes. If a division fails to agree on a decision, a neutral referee selected by the parties or, if they are unable to agree on such selection, appointed by the National Mediation Board, sits with the division to decide the case. The Adjustment board handles disputes growing out of grievances or the interpretation or application of agreements concerning rates of pay, rules and working conditions. There is no direct right of appeal to the courts but if a carrier does not comply with an award it may be sued and the findings and order of the board are prima facie evidence of the facts therein stated. In many cases, however, the employees threaten to strike rather than seek to enforce the award in court, as provided by law, and, as a practical matter, the right of judicial review is frequently eliminated by the use of economic force. The act contains a provision that individual carriers, or groups of carriers, and any class or classes of employees acting through their representatives selected in accordance with the law, may agree to the establishment of system, group or regional boards of adjustment, but this provision, as a practical matter, has not come into play because of the refusal of the organizations to enter into such agreements.

The Adjustment Board has not been entirely satisfactory in its workings. The referees are temporary and, while little if any criticism can be made as to their integrity, they have little opportunity to acquire any accurate experience or knowledge of railroad operating practices, rules or agreements. The board handles cases from every railroad in the country, a large order for any board, and some of the divisions are far behind in their dockets. The rules of procedure are in need of revision. A proper right of direct appeal for judicial review should be provided. In my opinion, there should be a permanent tripartite board composed of railroad, labor and public members—who will be permanent members of the board and will hear all of the arguments and gain experience in railroad rules and practices and create a continuity of adjustment so that the parties would have some idea as to where they are going.

When it comes to the provisions of the act for making changes in wage rates or working conditions, I think the present provisions of the law are probably about as fair and have worked as well as anything yet devised, unless we are ready to adopt a system of labor courts or compulsory arbitration. True it is that recommendations of emergency boards and of arbitration

(Continued on page 47)



Left—An "Apple Advertising" train operated in 1914 was the first of many similar exhibition trains to be run by the New York Central in the interest of furthering agricultural enterprise along its lines. Right—Cornell University co-sponsored the 1946 "Agricultural Farm and Home" special which included exhibits of labor saving machinery

Thirty-Three Years' Specialized Service to Farmers

For more than three decades the New York Central has operated agricultural demonstration trains, with a long range objective of increasing the prosperity of farm communities located in the territory served by its lines. A total of 58 of these educational and instructional trains have been operated—in cooperation with agricultural colleges—each dealing with subjects of great interest to the farmers in the improvement and advancement of their agricultural methods, as the accompanying list illustrates.

The first train of its kind operated by this road was an "apple train," operated in 1914 in cooperation with the New York State Department of Agriculture. In an effort to advertise the quality of New York-grown apples, and thereby extend that fruit market, the train was placed on exhibition throughout the non-apple producing territory along the New York Central lines in Indiana, Illinois and Southern Ohio.

Latest Farm Run

The most recent agricultural demonstration train was the "Indiana Farm and Home" special, which was run in cooperation with Purdue University. The New York Central furnished eight stripped coaches—which university personnel equipped with exhibits—and two Pullmans and a diner-lounge for the train staff, which included more than a score of college-trained teachers who explained and demonstrated the exhibits. The exhibits, in car order, included the following:

Car 1—Model farmstead arranged for beauty and livability, as well as efficiency and utility

Car 2—Model layout of an adequate farm water system for improved health and convenience

Car 3—Actual demonstration and instruction in mending four different ways. Model home with common hazards pointed out—and how to eliminate them. Use of native timber on the farm

Car 4—Chemical weed killers—control of crop diseases—soil conservation and fertility

Car 5—How to construct stock ponds, drainage systems, salt feeders, etc.

Car 6—Poultry management and rat control

Car 7—Model pens for the dairy bull; organization for artificial insemination in the community; equipment and instruction in milking methods; and control of flies

Car 8—Models of mow-drying for hay; trench and temporary snow fence silos for storing ensilage

The farm and home special originated at LaFayette, Ind., and was dedicated at Indianapolis in a ceremony attended by railroad officers, Governor Gates of Indiana and President Hovde of Purdue University. The train visited 41 Indiana counties during an 18-day tour, and its exhibits were viewed by 53,075 rural residents. Agricultural experts, who said the train was most instructive and very timely, told New York Central men that it was bound to increase the efficiency and prosperity of Indiana farmers. Good-will was evidenced wherever the train stopped. Publicity in local daily and weekly newspapers ran into thousands of column-inches, and was supported by advertisements of local business firms urging farmers to visit the special.

In 1946, a similar train, designated as the "Agricultural Farm and Home" special, sponsored by the New York Central and Cornell University, toured New York state, and was visited by more than 53,000. This train took the place of Cornell's prewar annual farm and home week, which had been attended by an average of approximately 20,000 visitors. Thus, when the exhibit was placed on wheels, its attendance nearly tripled.

Demonstration Trains Operated by the Agricultural Relations Department

	1914
New York Apple Advertising Train—Indiana	
	1917
Sheep and Wool Train—New York	
	1918
Food Production and Usage Train—New York	

Demonstration Trains Operated (Cont.)

1920
Marketing Train—Wabash valley
Dairy Train—Michigan
Holstein-Friesian Train—Michigan
Home Convenience Train—Lines East

1921
Poultry Demonstration Coaches—Indiana

1923
Land Clearing Train—Michigan
Ton Litter Train—Indiana
Poultry Demonstration Train—Ohio

1924
Dairy Trains—Lines East
Land Clearing Train—Michigan
Limestone Train—Lines West
Poultry Train—Ohio
Poultry and Egg Demonstration Train—Lines East

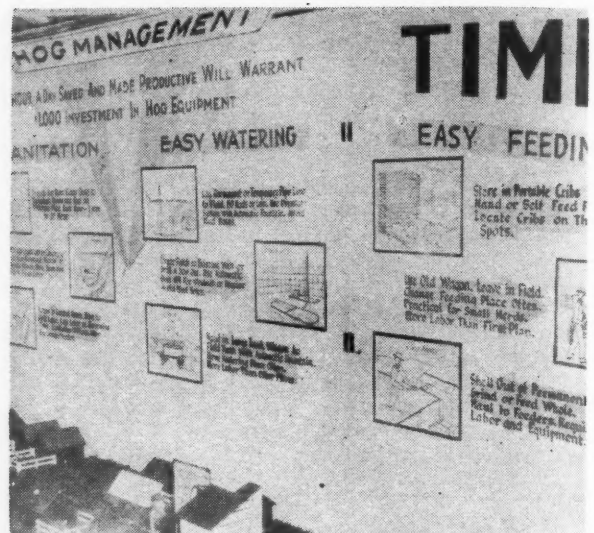
1925
Dairy Chautauqua—Pennsylvania
Poultry and Egg—Lines East
Lime Demonstration—Michigan
Soil Testing Trains—Indiana and Ohio
Soil Testing Train—Pennsylvania

1926
Forest Fire Prevention and Land Clearing Train—Michigan
Soil Improvement Train—West Virginia
Soil Fertility Train—Michigan
Dairy Calf Club Train—Pennsylvania
Dairy Calf Club Train—Southern Illinois

1927
Fruit Packing and Demonstration Cars—Western New York
Orchard Improvement Train—Southern Illinois
Meat Production and Marketing Train—Ohio
Potato Demonstration Train—Michigan
Meat Demonstration Train—Lines East
Alfalfa and Sweet Clover Train—Michigan

1928
Dairy Calf Club Train—Pennsylvania
Purebred Dairy Sires Train—Pennsylvania
Sugar Beet Train—Ohio
Sugar Beet Train—Michigan
Farm Chautauqua—West Virginia
Fruit Packing—Hudson valley
Farm Convenience Train—Michigan
Poultry Business Train—Southern Illinois

1929
Better Seed Train—Michigan
Farm Institute Train—West Virginia
Reforestation Train—Indiana
Potato Improvement Train—Ohio
Dairy Sires Train—Michigan



Purdue University equipped eight stripped coaches with farm-aid exhibits for the "Indiana Farm and Home" special

Soil Laboratory Cars—Michigan
Weed Control Cars—Michigan
Better Dairy Sires Train—Pennsylvania

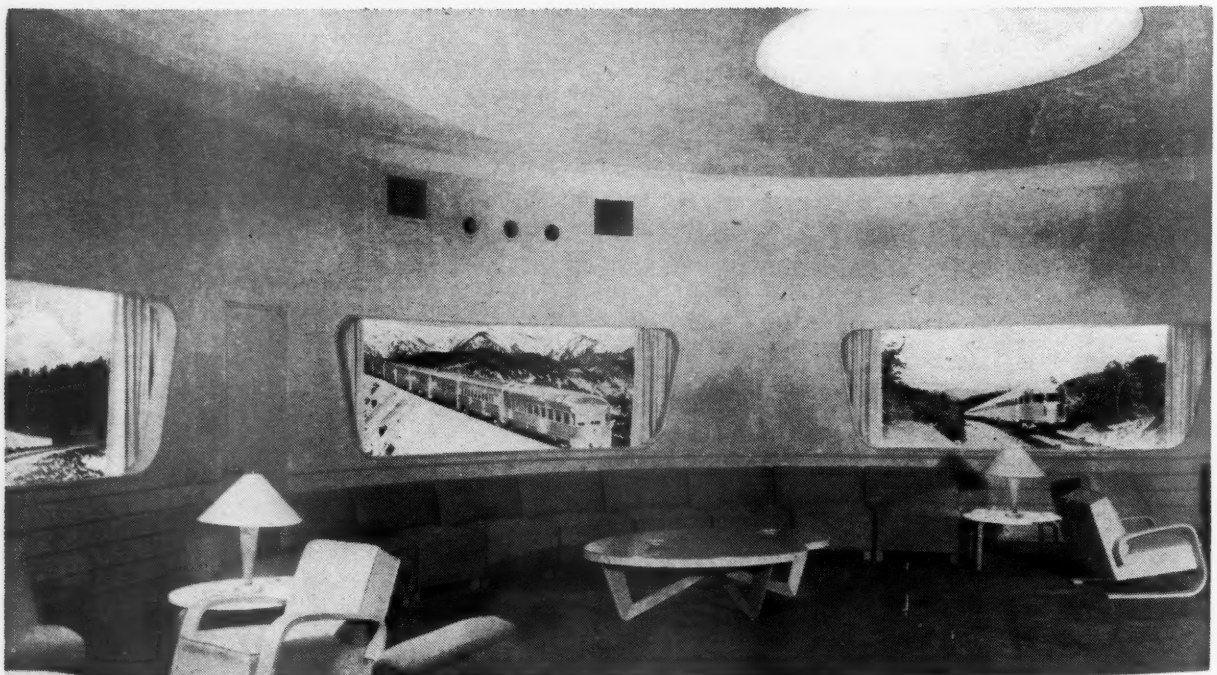
1930
Dairymen's Association Train—Illinois
Lime-Legume Train—Indiana
Soil Laboratory Cars—Michigan
Weed Control Train—Michigan
Poultry Train—Ohio and West Virginia

1931
Emergency Pasture and Hay Special—Michigan
Soil Testing Train—Michigan

1937
Soil Conservation Train—Michigan

1946
Agricultural Farm and Home Special—New York

1947
Farm and Home Special—Indiana



Reception room and lounge where movies are shown to railroad officers and guests, one of the redesigned Budd Company interiors

HOW THE HOPPER CAR HAS DEVELOPED

*Nine examples show trends throughout the steel-car era—Experience with lightweight cars—Present problem of weight reduction**

By **GEORGE A. SUCKFIELD**
Consulting Engineer, Pressed Steel Car Company

After examination of drawings of many hopper cars, from those of the very first lot of steel hopper cars built in 1897 to those last built, nine designs have been selected to highlight development. Weight, capacity and bare body weight per cubic foot of coal carrying capacity for each of these are shown in the table.

Cars numbered 1, 2 and 3 were selected to illustrate progress and represent three important periods in car development. The first period extended from 1897 to about 1918; the second, from 1918 to 1935, and the third, from 1935 to the present time. Cars numbered 1, 2 and 3 were built of carbon steel. Cars 4 to 8, inclusive, utilized materials other than carbon steel for all or parts of their body structure. Car No. 9 is included only for comparison with No. 8. Except for No. 5, which represents a welded design, bodies for all of these cars are riveted structures.

The Cars in the Table

Car No. 1 is a Pennsylvania Class GLA hopper car. This is selected to represent the first period in the development because its weight and capacity check closely with the average for a large number of cars built for many railroads between 1897 and 1918. In this first period the steel car and the steel hopper car were new and a wide variety of construction details were developed and built into the cars. Some features in the very first design still remain among the most favored. One of these is the saw-tooth arrangement of hoppers and another, the 30-deg. slope for end floor. Couplers, draft gear and reinforcing members for top of sides on the first cars were soon proved deficient and were strengthened. By the end of this period most

railroads were specifying continuous center sills formed of rolled sections, bulb angles for reinforcing the top of sides, 5-in. by 7-in. shank couplers, friction draft gear and arch-bar trucks.

Car No. 2 is the United States Railway Administration 55-ton hopper. This was developed by engineers representing the larger car-building companies and was approved by engineers representing the railroads. Complete sets of detail drawings for this and other U.S.R.A. cars were furnished nearly all railroads and many cars of this design were built between 1918 and 1935. This design provided construction details proved in the first period and capacity for hauling 55 tons of coal.

Prior to 1928, most general-purpose hopper cars utilized flat side sheets with reinforcing members on the outside of the car, but about 1928 many roads changed their sides by sloping the side sheets in near the top, and placing stiffening stakes on the inside. This arrangement offers flat surfaces throughout most of the car length for engaging supporting members in car dumpers and affords the desired capacity in the shortest length.

In the second period, 6-in. by 8-in. shank couplers with cast-steel yokes and key attachments and cast-steel side-frame trucks came into general use. Also, hooks and latches for locking hopper doors advanced in favor over devices operated by shafts and locked by means of ratchets and pawls.

Creation of this design and the wide distribution of its detail drawings brought to attention the economies and advantages offered by a standard car and paved the way for the adoption of the AAR standard hopper cars in 1935.

Car No. 3, representing the third period, is an AAR standard 50-ton hopper car except that it is equipped with I-beam bolsters and with weldments substituted

* From a paper presented at a Railroad Division session during the annual meeting of the American Society of Mechanical Engineers held at Atlantic City, N. J., December 1-5, 1947.

The Evolution of the Hopper Car

No.	Nominal Capacity, tons	Body Material	Weight of Complete Car, lb.	Weight of Trucks, lb.	Weight of Couplers; Draft Gear, and Air-Brake Equipment, lb.	Weight of Body Excl. of Coupler, Draft Gear, and Air-Brake Equipment, lb.	Capacity with 10-in. Average Heap, cu. ft.	Body Weight, Excl. of Couplers, Draft Gear, and Air-Brake Equipment per cu. ft. of Heaped Capacity, lb.
1	50	Carbon steel	39400	16400	2140	20860	1923	10.84
2	50	Carbon steel	41300	16400	2640	22260	2120	10.50
3	50	Carbon steel	41200	16180	2951	22069	2429	9.08
4	50	Cor-Ten steel	30800	12200	2700	15900	2605	6.10
5	50	Cor-Ten steel	33500	14000	3294	16206	2553	6.35
6	50	Aluminum and Carbon steel	31600	14000	2781	14819	2630	5.63
7	50	Wood and carbon steel	43200	15700	2780	24720	2307	10.71
8	70-90	Cor-Ten steel and carbon steel	48600	22700	3150	22750	3086	7.37
9	70-90	Carbon steel	59300*	24800	2810	31690	2975	10.65

for body castings. The AAR standard hopper car was designed in 1934 by the American Railway Car Institute Committee on Freight Car Design working in conjunction with the Car Construction Committee of the Mechanical Division, Association of American Railroads. This design met with considerable favor and many of these cars have been built since 1934. It refined and simplified construction details proved in the first and second periods and offered several new features. One of these is the welded Z-section center sill and, another, the one-piece hopper chute with welded door frame. It also took advantage of changes in road clearances and loading rules to provide sufficient capacity to receive a load of coal equal to the rail load-limit weight minus empty-car weight. The sides are of the inbent type, reinforced at top by 5-in. bulb angles and with stakes on the inside. By the time this car was developed couplers and attachments, dimensions for draft gear and essential dimensions for trucks had been standardized and AB brake equipment was required on all new cars.

Car No. 4 was designed by the Pressed Steel Car Company in 1934 to take full advantage of the physical properties of the then new Cor-Ten steel and high-tensile steel castings to provide a car of minimum weight which would carry the maximum allowable load of coal and other bulk materials.¹ Compared with cars built of carbon steel, the sheets and plates used in this design are very thin and when this was first offered many railroad men thought that it would not stand up in service. Early in 1935, 110 of these cars were placed in service on three railroads. One of these cars, taken from service on the Bessemer & Lake Erie, was exhibited at Atlantic City in June of last year while the convention of the Mechanical Division, Association of American Railroads was in progress. After more than twelve years service a few small holes and cracks have developed in floor and side sheets, but officers responsible for their repair estimate that with a little patching they will attain at least two more years' service from these sheets before they require replacement. One-quarter-inch copper-bearing-steel floor sheets in hopper cars on this particular line are regularly replaced in from 12 to 14 years. Cars in service on the Pittsburgh & Lake Erie required patching after 11 years. On this road, $\frac{1}{4}$ -in. copper-bearing-steel floors are usually replaced in from 10 to 12 years. Cars in operation on the Burlington had sides and floor sheets replaced in December, 1926, after nearly 12 years' service. Repairmen on this railroad decided to replace these sheets rather than patch cracks and small holes that had developed in them.

Twelve years' experience with these ultra-light-weight cars on three railroads shows that they are providing service life comparable with that of $\frac{1}{4}$ -in. copper bearing steel floors in hopper cars and suggests that slightly heavier Cor-Ten steel sheets equally well supported will outlast $\frac{1}{4}$ -in. copper-bearing steel. The service life of $\frac{1}{4}$ -in. copper-bearing-steel floors in hopper cars varies widely in different sections of the country and on different railroads, but it appears logical to assume that in sections where longer life is obtained from $\frac{1}{4}$ -in. copper-bearing steel, a corre-

spondingly longer life can be expected from the thinner sheets of Cor-Ten steel.

Car No. 5 is a new design developed by the Railway Research Bureau of the United States Steel Corporation Subsidiaries. As of July of this year, only a sample car had been built but additional cars were on order.² In this design two modern developments, Cor-Ten steel and arc welding, are combined to offer a practical light-weight car having a very smooth interior for the free flow of lading. The side sheets consist of two strips butt-welded together, the upper section being $\frac{3}{16}$ -in. thick and the lower, No. 8 gauge. The side reinforcing members are rolled sections and are applied on the outside of the sheets. The center sills consist of two pressed or rolled channel sections butt-welded together and welded to separate draft sills. The latter are the standard welded Z-section center sills.

Car No. 6 was developed by the Aluminum Company of America to utilize aluminum for body structure, except for center sills and bolsters which are of carbon steel. The bolsters are I-beam type and the center sills standard welded Z-sections. As of July of this year, this particular design had not been built, but aluminum hopper cars of other designs were in service.

Car No. 7 represents a composite design built in 1923. Wood has never met with much favor in hopper-car design, but it has been used quite extensively for sides and floors when steel plates for these were not obtainable.

Cars No. 8 and 9 were both designed to carry nominally 70 tons of coal or 90 tons of ore. Both were built for the Bessemer & Lake Erie; No. 9 of carbon steel in 1931, No. 8 of Cor-Ten steel in 1936. Both designs are used in the same service, moving coal from the Pittsburgh district to their lake port and ore on the return trip. No. 8 carries about three tons more coal and five net tons more ore than No. 9. For each trip with coal, the railroad collects \$5.43 and, with ore, \$5.90 more revenue for Car No. 8 than for Car No. 9. This increased revenue alone should show a very good return on any premium paid for the Cor-Ten-steel car over the cost of the carbon-steel car.

Weight

Minimum dead weight consistent with overall cost has been an objective of practically all designers. The table shows that in each succeeding period in the development, weight per cubic foot of coal carrying capacity was decreased. Stated in other words, capacity was increased without increasing weight proportionately. The tabulated data also permit comparison of capacities and weights of cars built of carbon steel with those utilizing other materials in the construction of their bodies.

Most everyone interested in freight cars knows that it costs real money to move dead weight but there does not appear to be agreement on what the actual out-of-pocket cost to the railroads is. These costs were analyzed some years ago by A. F. Stuebing,³ of the Carnegie-Illinois Steel Corporation, and by the Mechanical Advisory Committee to the Federal Co-or-

¹ See *Railway Age*, November 10, 1934, page 573, for a description of this car.

² See *Railway Age*, April 6, 1946, page 722, for a description of this car.

³ See *Railway Age*, September 2, 1933, page 339.

dinator of Transportation. The figures they arrived at varied from 0.619 to 1.944 mills per ton-mile. These figures are understood to have been based on operations in or about 1930. Since then, nearly all costs have advanced very materially and it is reasonable to assume that this cost is also much higher today than it was in 1930, and if train speeds are stepped up the costs will be still higher.

Whatever figure for this cost is accepted will be an important factor in determining what the railroads can profitably afford to pay for reduced dead weight, but not the only one to consider. Hopper cars are usually loaded to maximum capacity and because capacity is increased to the extent weight is reduced, railroads collect additional revenue on practically every load hauled. Also, hopper car floor and side sheets wear out, due to the combined action of corrosion and abrasion, and are regularly replaced one or more times during the life of the car and an increase in the service life of these will reduce maintenance cost.

Reduced dead weight, increased capacity and longer life of parts may be obtained in hopper cars by substituting low-alloy high-strength steel or aluminum for carbon steel in bodies. The first mentioned permits reducing weight and increasing capacity of the 50-ton car two to three tons and the 70-ton car a little more. With aluminum, a somewhat greater change is possible. Substituting either of these materials for carbon steel will increase the cost of the car, but change in price for the improved steel is quite nominal if no change is made in brake equipment.

Brake Equipment

In reducing the weight of hopper cars, the recommendations of the Committee on Brakes and Brake Equipment of the Mechanical Division of the Association of American Railroads for braking ratios need serious consideration. This committee recommends that all new freight cars shall provide a braking ratio of 18 per cent, preferably 20 per cent, of gross weight and Interchange Rule 3 requires that the braking ratio shall not be more than 75 per cent of the empty-car weight. To provide the minimum recommended ratio on gross weight and not exceed the maximum allowed on the empty car with single-capacity brakes, a 50-ton car must weigh at least 40,560 lb. and a 70-ton car, 50,400 lb. To provide the preferred recommended ratio on gross weight while not exceeding the limit for empty-car weight, minimum car weights become 45,100 lb. and 56,000 lb., respectively. Dual-capacity and load-compensating brake equipments cost considerably more than single capacity brakes, and if their cost is added to the cost of reducing dead weight of hopper cars, the total may discourage weight reduction. Surely the Brake Committee was convinced that the braking ratios they recommend are necessary for safe operation and, if this is true, it would appear to be only a matter of time until their recommendations are changed to a mandatory requirement.

The committee prefers a ratio of 20 per cent of gross weight on all new freight cars and if any new cars require this ratio it would appear to be the hopper cars. These, more than any other type, are regularly loaded to maximum capacity and frequently move in solid trains; also, very few hopper cars now in operation

provide even the minimum braking ratio recommended by the committee. It would therefore appear that more efficient brakes should be provided on all new hopper cars and that the increased cost for providing these should not be considered a part of the cost for reducing dead weight. The only alternative is to increase weight and reduce capacity.

Arc Welding

Arc welding has been vastly improved in recent years and an all-welded car body is now possible that will offer railroads economies in both first and maintenance cost. Arc welding is certainly not new in car construction even if an all-welded body is considered so.

It has been successfully used for joining Z-section center sills and door frames in AAR standard hopper cars and on an increasing scale for securing other parts in this and other cars for over ten years. Throughout a similar period its use by railroads in repairing cars and salvaging parts has steadily expanded which proves its advantages for this work also. Most railroads have now had sufficient experience in arc welding and flame cutting to enable them to maintain welded bodies as cheaply as riveted constructions. Welded joints should also offer longer life in floor and side sheets by eliminating lap joints to trap coal dust and moisture which cause corrosion.

To realize all the advantages offered by the substitution of welds for rivets, and low-alloy high-strength steel for carbon steel in hopper cars, it is necessary to reconsider carefully all design details affected. Mere substitution of one for the other will not accomplish much, if any, improvement.

While developing standard designs for welded hopper cars at the earliest possible time has advantages, delaying their creation for a year or more for observation and study of the designs recently placed in service might result in better standard designs and possibly insure a wider acceptance.

Before undertaking standardization of the welded hopper car, efforts should be made to obtain the Interstate Commerce Commission's approval for securing brackets and supports for safety appliances to the car body proper with welds. Welds offer advantages for this purpose and appear to be the logical thing to do on a welded design. Safety Appliance Standards as now interpreted require these brackets and supports to be secured by bolts or rivets, but surely the art of welding has now been advanced sufficiently to permit prescribing welds which will assure trainmen every possible degree of safety afforded by bolts or rivets.

The Outlook

Certain important design features incorporated in the first steel hopper cars built are still favored.

Development has consisted in refining, simplifying and improving construction details and attachments to adapt these to changing operating conditions, to facilitate maintenance and repair, to take advantage of new materials and processes, and to reduce production cost.

Steel has been and still is the favored material for hopper cars.

Tomorrow's favored hopper car, if not today's, will

be a steel car of welded design with better riding trucks and more efficient brakes.

Weight should be the minimum that will assure reasonable service life, particularly in parts subject to combined action of abrasion and corrosion.

The substitution of low-alloy high-tensile steel for carbon steel in hopper cars will permit reducing

weight, increasing capacity and lengthening service life of parts for an added cost that is justified. Just what degree of reduction in weight will prove most profitable depends on the relationship between the value of reduced weight and increased capacity and that of increased life of parts subject to corrosion and abrasion.

ROLLING LIGHTS FOR ENGINEHOUSE AND SHOP

Erie enginehouses and shops are now making effective use of two types of lighting units mounted on wheels. The larger unit used for lighting of work areas consists of two enameled-steel fluorescent lighting units mounted horizontally on a welded framework made of 1-in. conduit. This framework is carried on four 8-in. rubber-tired casters and is fitted with a flat tray for tools which is 2 ft. wide and 6 ft. long, and is 40 in. from the floor.

The lower lighting fixture is mounted rigidly under the tool tray at a height of 30 in. above the floor. It is tilted upward at an angle of 45 deg. The upper fixture may be rotated on its longitudinal axes to any desired angle within 70 deg. above or below the horizontal. A pair of sprockets, a chain and a quadrant and crank at one end of the frame make a convenient means of positioning the upper fixture. When the unit is placed at a distance of 9 to 10 ft. from the locomotive, it supplies from 34 to 40 footcandles of almost shadowless illumination on its side.

It has been found, by experience, that eight such units will meet the requirements of a 22-stall house.

They are not checked out, but are picked up by the shop men as needed and rolled to the work location. It has also been found that since the fixtures are in a convenient location, the users will wipe off lamps and reflectors when they become dirty. Each unit is fitted with a 50-ft. length of cord with which it is connected to outlets previously used for hand extension lights. These circuits had sufficient capacity to carry the 400-watt load of the units and no additional wiring was necessary.

There are now about 75 of the units in service at various points on the railroad. The only other lighting required in an enginehouse is aisle lighting and pit lighting.

For pit lighting, a smaller lighting unit has been developed. It consists of a vapor-proof metal housing large enough to contain four 24-in., 20-watt fluorescent lamps. It has a clear glass cover and a white reflector and is mounted on four 4-in. rubber-tired casters; it may be tilted to either side of the vertical at any angle up to 20 deg. All of the units were made at the Meadville, Pa., shops of the Erie.

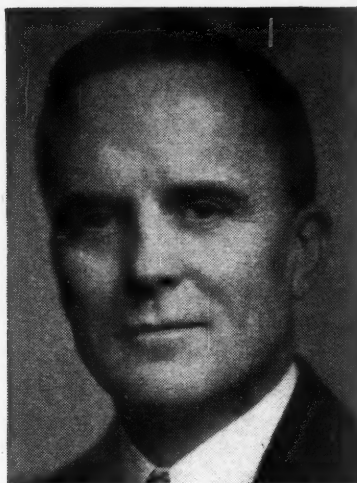
Left—One of the lighting units in service in an enginehouse. Right—Small portable lighting unit used for pit lighting



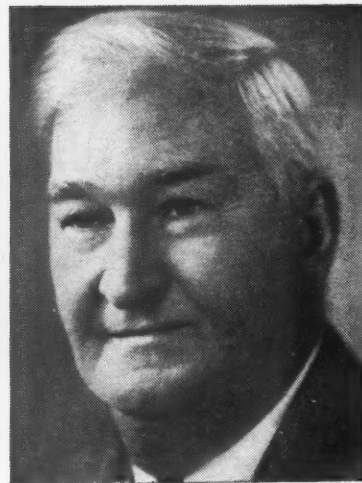
E. S. Williams Succeeds

C. W. Brown as

Western Maryland Head



Eugene S. Williams



Fabian Bachrach

Charles W. Brown

Eugene S. Williams, who succeeded Charles W. Brown on January 1 as president and chairman of the board of the Western Maryland, was born in Romney, W. Va., in 1892. He was graduated from the law school of the University of Virginia in 1916 and entered railroad service seven years later when he joined the legal staff of the Western Maryland as commerce counsel. Subsequently, he was appointed, successively, general attorney and general solicitor, finally becoming head of the law department as general counsel in 1934. Mr. Williams also was elected vice-president in 1935 and held both positions until his recent advancement.

During World War I Mr. Williams served in the Field Artillery. In 1942 he entered the Army Air Forces as a captain. He served in the European theater of operations as an intelligence officer for the 8th Air Force and was discharged from the army in October, 1945, with the rank of lieutenant colonel.

Mr. Brown, the retiring president and chairman, was born on January 10, 1880, at Fort Gaines, Ga., and began his railroading career in 1898 as a rodman with the engineering department of the Central of Georgia. In 1900 he joined the Baltimore & Ohio as a transitman. Three years later he became a resident engineer for the same road. From 1904 to 1906 he was an assistant engineer in the maintenance-of-way department of the Atlantic Coast Line. During the next two years Mr. Brown worked for the A. C. L. as a roadway engineer. He then rejoined the Central of Georgia as a locating engineer. In 1910 he was employed as railroad work superintendent by the Hall, Parker Construction Company and in 1911 he went to the Lehigh & New England as a maintenance-of-way engineer. Appointed assistant superintendent in 1913, superintendent in 1917 and general superintendent in 1927, Mr. Brown left the L. & N. E. in 1930 to become general manager of the Western Maryland. He was elected vice-president, as well as general manager, in 1933, and president in June, 1934. In March, 1938, he was also elected chairman of the board. Although retiring from active duty, Mr. Brown will retain a position on the road's board of directors. He is a member of the American Railway Engineering Association and the Newcomen Society of England.

William C. Purnell, who entered the law department of the Western Maryland in 1931 as assistant general

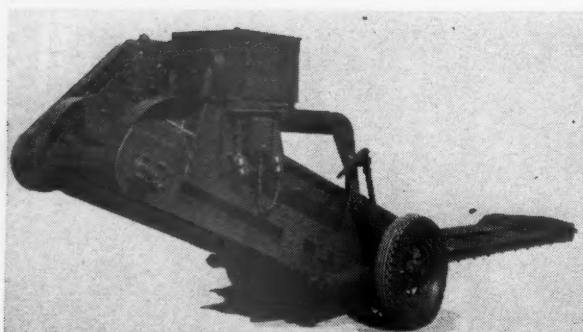
attorney and was appointed general attorney in 1934, will succeed Mr. Williams as general counsel. Paul S. Parsons, general attorney since 1934, will become general solicitor.

The first corporate entity in the line leading to the present Western Maryland Railway Company was chartered on May 27, 1852, as the Baltimore, Carroll & Frederick Rail Road Company. On March 21, 1853, the name was changed to Western Maryland Rail Road Company by a special act of the Maryland legislature. The present company was incorporated under Maryland and Pennsylvania laws in 1917 as the result of the consolidation of the Western Maryland Railway Company (which had purchased the property of the Western Maryland Rail Road under foreclosure proceedings in November, 1909); the Baltimore & Harrisburg Railway; the Baltimore & Harrisburg Railway—Western Extension; the Baltimore & Harrisburg Railway—Eastern Extension; the Baltimore & Cumberland Valley Railway; the Baltimore & Cumberland Valley Rail Road; the Connellsville & State Line Railway; and the George's Creek & Cumberland Railroad.

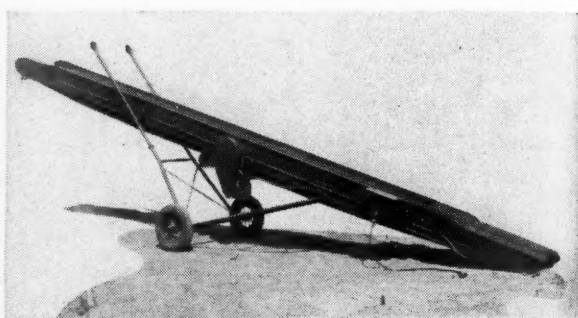
In addition to the lines included in this consolidation, the company operates under lease the Baltimore & Cumberland Valley Railroad Extension and the Washington & Franklin Railway.

Operating on December 31, 1946, a total of 836.76-mi., composed of 530.75-mi. of main line, 35.54-mi. of branches and spurs, 45.56-mi. of leased lines, 104.84-mi. of operated lines and 120.07-mi. of trackage rights, the Western Maryland extends its main line from Baltimore, Md., to Connellsville, Pa., Belington, W. Va., Elkins, Durbin and Webster Springs. Connections are made with the Chesapeake & Ohio at Durbin, the Baltimore & Ohio at Elkins, and the Pittsburgh & Lake Erie and the Pittsburgh & West Virginia at Connellsville. Among the principal commodities hauled by the road are soft coal, iron and steel (fifth class), cement, lumber, fertilizers and ores and concentrates.

Operating revenues, which totaled \$13,883,274 in 1934, had risen to \$32,070,791 in 1946, the latest year for which figures are available. Net operating revenue, over the same period, increased from \$4,439,191 to \$8,383,776 and net income jumped from \$995,255 to \$2,029,196.



The Barber-Greene Model 358 car unloader



The Barber-Greene Model 363 stockpiler loader

HOPPER-CAR UNLOADING TEAM

Barber-Greene Company, Aurora, Ill., announces the development of two new units to facilitate the unloading of coal, stone, sand, gravel and other bulky materials from hopper cars. One of these is a heavy-duty car unloader with a handling capacity said to range up to three tons per minute, while the other is a stockpiler-loader.

The unloader, designated as Model 358, is designed for operating in unloading pits or above the rails, directly beneath a car, as desired. Of rugged construction, it is mounted on a pair of pneumatic-tired wheels to facilitate moving it into position or for movement over the highway. This unit is said to be balanced to the extent that one man can handle the machine to spot it at the proper location under a car or in a track pit. It may be obtained with an electric motor or a gasoline engine, as desired. A feature of the unloader is its conveyor belt, which is actuated by a chain drive. The chain and belt are riveted together by steel attachments and cleats, an arrangement which is said to give positive belt movement at all times without jamming.

The stockpiler-loader, designated as Model 363, is also available for electric or gasoline power and is mounted on two pneumatic-tired wheels. The unit may be obtained with a plain or a cleated belt as desired, the belt being operated through a chain drive. The stockpiler has a belt width of 24 in. and is available in lengths of 25 ft., 30 ft., and 35 ft.

CAR SHAKEOUT

Rapid and effective unloading of coal, ore and similar bulk materials from hopper cars is now said to be possible with the aid of the Robins Car Shakeout, a product of the Robins Conveyors division, Hewitt-Robins, Inc., Passaic, N. J. This device, which is an inverted variation of a foundry shakeout, is an electrically-operated unit, which is lowered by means of a hoist, to straddle and engage the sides of a hopper car. When the motor is turned on, the mechanism of the shakeout sets up rhythmic harmonics within itself, which are transmitted to the car and its contents. These impulses—approximately 1,000 per min. of the correct amplitude—are said to vibrate the car and its contents to the extent that the material runs freely from the hoppers.

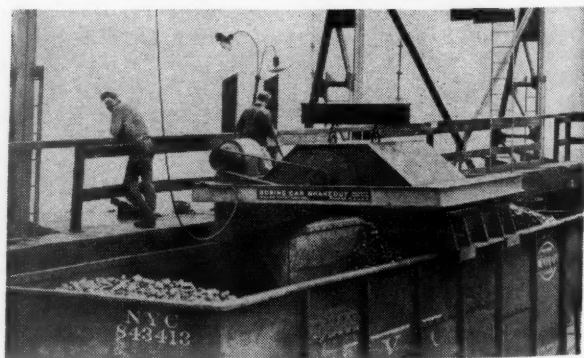
Only two men are required in the unloading operation where the Robins Car Shakeout is used. One of these is engaged in opening and closing hopper doors, while the other operates the hoist which raises and lowers the machine each time a car is unloaded, and also starts and stops the machine by push buttons. It is said that 50-ton cars may be unloaded in from three to five minutes if the material is not frozen, while a longer period, up to 20 min., is needed if the material is frozen.

An important advantage claimed for the car shakeout is the elimination of much of the damage formerly caused by sledge hammers, poke bars, picks and other tools frequently used during the unloading process.

WATER PURIFICATION FOR DIESEL LOCOMOTIVES

A complete installation for the purification of water for use in steam generators on Diesel locomotives is now being offered by The Worthington Pump & Machinery Corp., Harrison, N. J. This system, which is being marketed as the Worthington ion-exchange process, is said to remove to a high degree objectionable dissolved impurities from water.

A typical Worthington installation embodies two tanks or ion-exchangers, each being so arranged that water enters at the top, passes through a bed of an ion-exchange material and leaves through a system of under-drains beneath the bed. One of these tanks, known as the cation unit, contains a bed of exchange material which removes the ions of the base metals



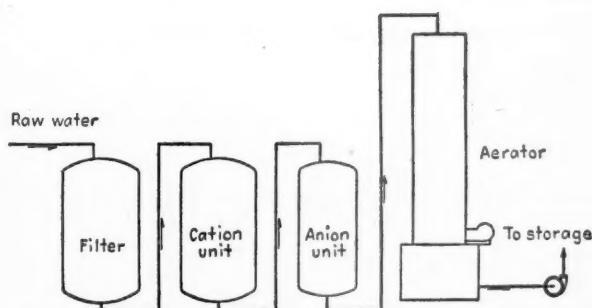
A Robins Car Shakeout in position on a hopper car

present in the water and replaces them with hydrogen ions to form mineral acids. This unit also neutralizes the alkalinity in the raw water, a process which is necessarily accompanied by the formation of carbon dioxide. The second tank, or anion unit, is the acid absorber and contains an exchange material which absorbs the mineral acids formed in the cation unit.

Other essential components of the system, but not directly involved in the ion-exchange process, include a filter for removing turbidity from the raw water, and an aerator wherein the water from the cation and anion units is finely divided and subjected to a forced draft of air for the purpose of removing the carbon dioxide formed in the cation unit. A fifth component of the system introduces a small amount of phosphate and alkalinity into the feed water to insure against corrosion or possible hardness.

Water, in passing through the system, moves through the filter first and then passes into the cation unit, and through its bed of ion-exchange material. It then goes through the anion unit and its exchange material and, finally, into the aerator.

The ability of the ion-exchange material to give up useful ions in exchange for those that are undesirable becomes lessened as the water treatment continues, until the material becomes exhausted. It must then be regenerated or restored to its original composition, and



Flow diagram of a Worthington ion-exchange system where filtration is presumed to be necessary

this is accomplished by passing a solution of the proper regenerative chemical through the ion-exchange bed in the reverse direction. In the case of the cation unit, the regenerative chemical is sulphuric acid, while in the anion unit it is sodium carbonate. The Worthington units are said to be constructed to facilitate this process. A feature of the Worthington ion-exchange system is the use of an alarm meter, known as the Worthington-Gamon alarm-meter for signaling the need of regeneration of the exchange material in each unit. Worthington ion-exchange systems are available for use in closed or open tanks, depending upon whether pressure or gravity flow is involved.

THE LAW AND RAILWAY LABOR

(Continued from page 38)

boards have gone further than the railroads felt was justified and that, even then, reports of the emergency board have been rejected by the organizations. This is a situation to be deplored and it does not fit the American conception of administrative and adjudicatory process. It is, however, within the letter of the law and must remain so unless we wish to accept compulsory process. Whether such a change would be desirable is a large question and it presents many problems for serious consideration.

Much of the criticism of the Railway Labor Act and its administration comes whenever railroad employees receive a wage increase, but we have this very human and very natural factor that, when employees in other industries have received substantial wage increases, can it be expected that railroad employees will not want some kind of an increase too? In no instance, at least in my experience, have the railroads initiated any round of wage increases or set any alleged "pattern." They have simply been caught in a web of circumstances beyond their control.

The main difference between the railroad industry and other industries seems to be that other industries can grant wage increases and can, then, immediately recover the increased cost by price increases where necessary. Railroads, however, when finally forced to grant wage increases, must seek rate increases from public authority and, all too frequently, meet the opposition of the very industries which have granted wage increases themselves and helped set a wage pattern and then raised prices to cover the cost. Such increased prices have also generally increased railroad

costs since the railroads are such large purchasers of many different products. Yet the argument is made that railroads should not have increased rates to recoup such increased costs. Such a policy can only lead to bankrupting the railroad industry and reducing its ability to provide safe, economical and efficient transportation and to make the many constant improvements in the transportation system of the country which are necessary to keep up with economic progress.

What will be the result of the constant spiral of increasing wages and of increasing prices, I cannot foretell. It seems to me that the leaders of labor generally must realize that no lasting benefits are derived from taking such large wage increases as to require substantial increases in prices. There must be a return to the policy of making haste slowly, of taking such gains as the economy can stand and then giving the economy time to adjust itself. Lasting benefits can be secured only through the adoption of better methods of production which will result in the absorption of increased costs, and in thus permitting a real betterment of the standard of living of workers. The situation that has obtained in recent years, particularly the past two years, of large wage increases followed by substantial price increases does not result in any real improvement in purchasing power or in any real improvement in the standard of living. It only results in cheapening and devaluing the dollar.

This, in my opinion, is our most serious problem, but it is not a problem for the railroad industry alone or one which can be solved by that industry alone. It is a national problem which should engage the attention and close study of every segment of our economy, both labor and management, as well as agriculture and the government.

GENERAL NEWS

Santa Fe To Quit Air Freight Service Soon

Adverse C.A.B. action given as reason for railroad's decision

Because of the "obvious unfriendly attitude" of the Civil Aeronautics Board toward the Atchison, Topeka & Santa Fe and other surface carriers, Santa Fe Skyway, Inc.—air freight subsidiary of the railroad—will abandon operations in the immediate future, H. R. Lake, president of Skyway, announced on January 13. The company has been operating between New York and California and intermediate points as a contract carrier of air freight since July 1, 1946. It is expected that the firm will cease operations within the next 30 days.

"It is obvious that the board does not share our view that the real interest of the public is in the quality and cost of service, but that the board believes that the primary issue is who should be allowed to give service to the public," Mr. Lake declared. "All of this was clearly reflected in the recent action of the C. A. B. in denying Skyway the exemption which has been granted to other non-certificated air cargo carriers under the board's Economic Regulation No. 292.5, which permits them to operate as common carriers of air freight pending action by the board on their applications for certificates of public convenience and necessity."

The action of the board in singling out Skyway and denying it the exemption granted to the other air cargo carriers, Mr. Lake asserted, is "a clear indication that the board is determined to exclude surface carriers from any effective participation in the development of air transport regardless of the benefits that would accrue to the public and to the national defense program."

Skyway was organized in May, 1946, and since that time has operated a fleet of seven airfreighters more than 2,000,000 plane-miles with a perfect safety record, the company's president pointed out. The company's planes, he added, are the finest and best equipped in service today, and Skyway's efficient and dependable service has received the enthusiastic support of the relatively few customers it has been permitted to serve as a contract carrier.

Skyway, in conjunction with the Santa Fe and the latter's trucking subsidiaries, offered to render a coordinated air, rail and truck service in the general territory served by the Santa Fe in applications which were first filed in

November, 1946, and amended in May of 1947, to include service to New York. Although an early hearing was requested, the board has taken no action on these applications and, according to Mr. Lake, "there is little prospect that they will be set for hearing within the next several months."

Continuing, Mr. Lake declared: "In framing the exemption regulation the board took notice of the fact that the rapid development of the air freight field resulted, not from the efforts of the certificated airlines, but from the activities of the non-certificated cargo carriers, such as Skyway. The board recognized that without common carrier rights these cargo carriers would not be able to continue the development of this new industry during the period before final board action on their applications for permanent common carrier certificates. It was recognized that without such temporary rights many or all of these newcomers would be forced to abandon their operations, thereby depriving the public of the benefit of their experience."

"Immediately after issuance of the exemption regulation in May, 1947, Skyway petitioned the board to broaden the exemption to include a surface carrier subsidiary such as Skyway, pointing out that the grounds on which the exemption was based were as applicable to Skyway as to the other non-certificated cargo carriers. Although these other cargo carriers have been operating as common carriers under the exemption since June 10, 1947, no action was taken on Skyway's petition until December 5, 1947, when the petition was denied."

"The only possible conclusion from the board's action in excluding Skyway alone from the benefits of this exemption is that the board does not want to afford a surface carrier the opportunity for experimentation in and development of this fast growing air cargo field, regardless of the interests of the shipping public. The board has consistently refused to grant air certificates to surface carriers or their subsidiaries, relying upon a strained and unwarranted construction of the Civil Aeronautics Act and upon the unfounded assumption that entry of surface carriers would hinder development of the air transport field. The case of Skyway offered the board an opportunity to test this assumption by permitting a surface carrier subsidiary to operate under a temporary exemption as a common carrier. The board has clearly indicated that it does not want to make the test."

"It is apparent that the board's dis-

criminatory policy against surface carriers can only be changed by amendment of the Civil Aeronautics Act to make it clear that surface carrier applicants before the board are to receive the same consideration as other applicants for air certificates. Legislation with this end in view was introduced in the last regular session of Congress, but, after extensive committee hearings, no action was taken.

"It is impossible for a contract carrier such as Skyway to operate on a profitable basis under present conditions. As a contract carrier it can serve only a limited number of shippers, while its competitors in the air cargo field are free to solicit traffic from the public generally and to develop their operations to the fullest extent. A destructive rate war financed, in part, in the case of the certificated air lines, by governmental subsidy in the form of mail pay, has reduced air freight rates to a non-compensatory level. In the light of these conditions, the boards predilection against surface carriers and the evident impossibility of obtaining final board action on the Santa Fe applications within a reasonable time, the Santa Fe has reluctantly decided to withdraw from the air transport field."

Spending on Transport Must Go On—Truman

Budget message calls for highway, waterway, airway programs

Because "the current high level of economic activity makes heavy demands upon the nation's transportation system," President Truman thinks that the federal government "must not only perform its regulatory functions but must provide basic facilities and services on an expanded scale for highway, air, and water transport." That's what the President said in the January 12 message with which he transmitted to Congress his proposed fiscal 1949 budget calling for continued public spending on highways, airways and waterways.

The proposed fiscal 1949 appropriations for such spending, as well as those for the Interstate Commerce Commission, Office of Defense Transportation, Railroad Retirement Board, and National Mediation Board, are reported in another column. The entire budget set out proposed appropriations totaling \$39.7 billion and estimated receipts at \$44.5 billion, thus indicating a surplus of \$4.8 billion which the President would use to reduce the national debt.

The comment on the proposed spending for transport facilities came in the "Transportation and Communication" section of the message, where the President went on to say that most of the government's activity in these fields since the war represents "deferred maintenance." He added that "little has been done so far to effect the long-run improvements that are needed."

As to the publicly-maintained airways system, the President said it is in "urgent need" of improvement. "The installation of landing aids and the modernization of other aids to air navigation," he continued, "must be accelerated in order to insure increased safety and regularity of air transportation, and thus provide a solid foundation on which private capital investment can carry this industry forward."

The proposed appropriation for the federal-aid airport program, the President said, "represents the minimum level consistent with continued aviation development." This assertion came after Mr. Truman had observed that expanding aviation activities "have rendered inadequate many existing airports and have pointed up the need for new ones."

Coming to the highway program, the message said that the national system "needs extensive improvement and modernization." It pointed out that while expenditures under the present federal-aid program "will continue at a high level through 1950," the current fiscal year ending June 30, 1948, "is the last for which new contract authorization is provided." Because "the development of an adequate highway system will require continued federal aid," and "to insure continuity in programming," the President promised to submit, "at an early date, specific proposals designed to meet this need."

Another matter to be dealt with in a subsequent Presidential message to Congress is the proposal to build a sea-level canal connecting the Atlantic and Pacific oceans. Of the proposed St. Lawrence seaway and power project, the President said it "is needed for both transportation and industry." He added that "as an important step in advance planning, the Congress should now authorize this project in order that international treaty provisions and other arrangements can be worked out."

The maintenance and improvement of rivers and harbors by the Army's Corps of Engineers, as the President put it, "will call for an increase in expenditures in 1949, principally for projects already under way." He went on to say that "only a very few urgently needed new projects are proposed to be started in 1949." With respect to the United States Maritime Commission's domestic water-carrier operations, the President said they are being carried on through "special chartering arrangements looking toward the eventual return to completely private operations."

A proposed appropriation of \$26 million, plus contract authorizations of about \$7 million, for the Alaska railroad

contemplate continuation of the rehabilitation program on that road. The message also commented on the postal deficit, renewing its predecessor's recommendation that postal rates be revised to put the service in the black. In addition to taking care of the presently-indicated deficit, the budget makes provision in its contingency reserve to cover pending increases in railway mail pay and proposed higher air-mail allowances to the air lines.

Rail Consolidations Urged by President

Also says national policies
should protect roads' credit

"Railroad consolidation should be carried out with increasing vigor and national policies should recognize the need for protecting the credit of the railroads," is the way President Truman's second annual economic report summarized its findings with respect to the railroad situation. The report, which the President is required to make under the Employment Act of 1946, went to Congress on January 14.

The reference to the railroad situation is found in that section of the report which deals with "Long-Range Objectives for the American Economy." There also are found brief references to other transport agencies, the President suggesting that 45 per cent of the highways leading into cities need to be rebuilt within 10 years and that "financial aid to the airlines should be continued." His comment on the railroads was as follows:

"A most urgent national problem in the field of domestic transportation is the maintenance of an expanding and efficient railroad service. Large earnings of the war period permitted the more prosperous lines to fortify their financial position and brought about the financial rehabilitation of many railroads which for years had been in receivership. These great improvements in their financial position are rapidly being dissipated by the effects of inflation, and the railroads will benefit as greatly as any part of our business institutions from a successful effort to end the inflationary movement.

"It is in the national interest to insure the continuance of efficient rail transportation. Consolidation of facilities, though it has shown but little progress after nearly 30 years of study and effort, offers such possibilities of convenience and economy that it should be steadily pursued. We can be optimistic about technical improvements helping to offset the rising cost of wages and goods if management and labor are alert to the opportunities which their introduction offers. The need must be recognized to protect the

credit of the roads in order to enable them to finance the heavy expenditures which are necessarily involved in these technical changes."

In its discussion of the general economic situation, the report says that the first objective for 1948 "must be to halt the inflationary trend." Mr. Truman then goes on to call again for controls to deal with price increases and the distribution of scarce commodities—the Presidential program on which Congress has thus far failed to act.

As to wages, the President said that the increases of 1947 "kept up generally with the cost of living trend during the year but did not gain the ground lost when price increases exceeded wage increases in 1946." He added: "At the end of the year there was a continuing prospect of fruitless and dangerous spiraling of prices and wages."

Fiscal '49 Budget Goes to Congress

Proposes usual appropriations for
agencies and transport facilities

Proposed appropriations totaling \$11,229,000 for the Interstate Commerce Commission, \$593,000 for the Office of Defense Transportation, \$862,550 for the National Mediation Board and National Railroad Adjustment Board, and \$642,416,000 for the Railroad Retirement Board are included in the budget for the fiscal year ending June 30, 1949, which President Truman submitted to Congress on January 12. The budget also proposes \$460,588,854 for the Public Roads Administration, including \$452,288,854 for the "federal-aid post-war highways" and \$7,300,000 for grade crossing elimination and protection work; \$191,267,500 for the Army's Corps of Engineers to spend on the maintenance and construction of rivers and harbors navigation facilities; and \$155,570,000 for the Civil Aeronautics Administration, including an estimated \$66,050,532 for "operation of federal airways system," \$23,099,000 for the establishment of additional air-navigation facilities and \$40,000,000 for the federal-aid airport program.

The \$11,229,000 proposed for the I. C. C. compares with appropriations totaling \$10,743,000 for the current fiscal year ending June 30, 1948. The breakdown of the proposed appropriations for fiscal 1949, with changes from fiscal 1948 indicated in parentheses, is as follows: General expenses, \$9,466,000 (up \$466,000); railroad safety, \$908,000 (no change); locomotive inspection, \$615,000 (up \$10,000); printing and binding, \$205,000 (up \$5,000); cost of handling penalty mail, \$35,000 (up \$5,000).

A table in the budget indicates that the item of \$9,466,000 for I. C. C. "gen-



Nine new 4,500-hp. passenger Diesels made by Electro-Motive have gone into service on the Great Northern's "Oriental Limited" and "Fast Mail" between St. Paul, Minn., and Wenatchee, Wash.

eral expenses" includes \$3,743,463 for the Bureau of Motor Carriers, an increase of \$276,643 in the fiscal 1948 allowance for that bureau. Other increases, as the bureau's explanatory statement put it, are distributed "to meet increasing work load" among the other bureaus. "Post-war readjustments in the transportation system continue to impose an unprecedented burden on the commission," the statement also said.

The \$593,000 recommended for O. D. T. compares with \$400,000 received by that agency thus far in the current fiscal year; but the budget indicates that a supplemental appropriation of \$31,000 for fiscal 1948 will also be sought. Congress recently enacted Senate Joint Resolution 167, extending until February 28, 1949, President Truman's powers to allocate "the use of transportation equipment and facilities by rail carriers." Those powers, which were previously scheduled to expire February 29, 1948, had been delegated to O. D. T., and the President has now extended the term of such delegation to the new expiration date.

The \$862,550 proposed for the Mediation Board and Adjustment Board compares with appropriations totaling \$869,400 for the current fiscal year. The fiscal 1949 proposal includes \$332,100 and \$374,200, respectively, for N. M. B. and Adjustment Board "salaries and expenses." The remainder is divided, \$100,000 for arbitration and emergency boards, and \$56,250 for printing and binding and costs of handling penalty mail. The explanatory statement said that although the transportation industry "was not entirely free from work stoppages in the past year," N. M. B. "contributed materially to stable labor relations." It added that "no crucial labor problems in the industry are anticipated in 1948 or 1949, although considerable unrest is expected to continue."

The \$642,416,000 proposed for the

Railroad Retirement Board includes \$637,986,000 to be appropriated to the Railroad Retirement Account in the Treasury, and \$4,430,000 for the board's administrative expenses under the Railroad Retirement Act. The latter compares with the current fiscal year's \$5,721,000 cost of administration. Because of the present level of payroll tax receipts, the retirement trust fund "continues to show an improved position," the explanatory statement said. "It is anticipated," it added, "that this favorable trend will continue for a number of years thereby bringing the trust fund into a stronger actuarial position." R. R. B. will also have an estimated \$14,700,000 during fiscal 1949 for administration of the Railroad Unemployment Insurance Act, which provides that 10 per cent of the taxes collected thereunder shall be available for administrative purposes.

The \$452,288,854 proposed for the federal-aid post-war highway program compares with \$247,711,146 for fiscal 1948; but P. R. A. also has in the current year appropriations for certain items not included in the fiscal 1949 budget—\$10,288,854 for the former federal-aid highway system, \$3,000,000 for federal-aid secondary and feeder roads, and \$3,000,000 for public-lands highways. Of this situation, the explanatory statement said that the 1948 appropriations took up all pre-war federal-aid authorizations, except as to grade crossing elimination and protection work.

If the proposed \$7,300,000 for the latter is appropriated for fiscal 1949, there will still remain authorization for \$10,000,000 more to be appropriated for grade crossing work in subsequent years. There was no fiscal 1948 appropriation for grade crossing work, but funds for such work were nevertheless available under that provision of legislation relating to the post-war highway program which permits up to 10 per cent of the funds made available for

highways to be used for grade-crossing elimination and protection projects.

The \$191,267,000 proposed for the Army engineers' rivers and harbors work includes \$107,350,000 for new construction, \$2,000,000 for "advance planning," \$74,500,000 for maintenance and operation of completed works, and \$3,400,000 for surveys. While fiscal 1948 appropriations for rivers and harbors work totaled only \$116,718,700, the Corps of Engineers has had more than \$200,000,000 available for such work during the current fiscal year. The funds, in addition to the appropriation, came principally from unexpended balances of previous appropriations (\$25.7 million) and reimbursements for services performed (\$55.6 million). Thus the current fiscal year's expenditures on new rivers and harbors works, including advance planning, are expected to total about \$58,000,000, while the outlay for maintenance and improvement of existing works, including surveys, will be about \$81,900,000.

Also proposed for the Army engineers in fiscal 1949 is \$500,000 (the same as the fiscal 1948 appropriation) to cover the federal government's share of the cost of altering railroad bridges over navigable streams. This proposed appropriation is designed to meet requirements of the so-called bridge act of June, 1940, which provides that the government must pay for altering railroad bridges required to be rebuilt in connection with waterway improvements—except such costs as result in benefits to the railroads involved.

The \$66,050,532 which the Civil Aeronautics Administration is expected to spend for operation of the federal airway system would be included in a general appropriation of \$87,451,000 for C. A. A. "salaries and expenses." Also included would be \$11,181,355 for the "enforcement of safety regulations." From its "salaries and expenses" appropriation of \$72,962,768 for the current fiscal year, C. A. A. has allocated \$55,513,369 and \$9,739,500, respectively, for these activities. The proposed fiscal 1949 appropriation of \$23,099,000 for the establishment of additional air-navigation facilities compares with fiscal 1948 appropriations totaling \$11,149,066. The proposed \$40,000,000 for the federal-aid airport program is expected to be increased above \$47,000,000 by the unexpended balance carried over from fiscal 1948. During this current fiscal year, expenditures on the airport program are expected to total \$69,000,000, the year's appropriation of \$32,500,000 having been augmented by more than \$44,000,000 carried over from fiscal '47.

For maintenance and operation of Washington National Airport, C. A. A. received \$1,102,500 during the current fiscal year, and the budget proposes to give it \$1,185,000 for that purpose in fiscal 1949. It also proposes a fiscal 1949 appropriation of \$1,835,000 for new construction and repair work at that airport.

Senate Gets Favorable Report on St. Lawrence

Also minority report assailing plan to build proposed seaway

The pending resolution to approve the United States-Canada agreement for construction of the St. Lawrence seaway and power project last week was reported favorably to the Senate from its committee on foreign relations. A minority report opposing the resolution came at the same time from four members of the committee—Senators White of Maine, Lodge of Massachusetts, Republicans, Connally of Texas and George of Georgia, Democrats.

The resolution is S. J. Res. 111, introduced by the committee's chairman, Senator Vandenberg, Republican of Michigan, for himself and a bipartisan group of 15 other senators. It would approve the agreement with provisions purporting to make the seaway and power developments "self-liquidating." As noted in the *Railway Age* of January 10, page 68, the resolution is on the list of measures selected by the Senate's Republican policy committee for first consideration at the present session.

Except for brief introductory material, the foreign relations committee's favorable report was a reproduction of the report made by one of its subcommittees which held hearings on the resolution last year. Because previous Congressional hearings had gone into various other phases of the project, the subcommittee confined its inquiry to the "national-defense" and "self-liquidating" aspects. The minority report attacked the subcommittee's arguments, and included a suggestion that the "self-liquidating" phase be investigated by an "informed" agency such as the Interstate Commerce Commission.

With respect to the "national-defense" phase, the favorable report noted the opponents' position that the project would contribute "little or nothing" in that way. It then went on to point out that "proponents of the project as a contribution to national defense" include President Truman, former President Hoover, the late President Roosevelt, and Secretary of State Marshall. After considering the presentations on both sides of the question, the subcommittee was "unanimous in concluding that the preponderance of evidence . . . shows beyond doubt" that the project "would contribute materially to the defense of North America."

In considering the "self-liquidation" phase, the subcommittee first rejected the opponents' contentions that the proposed tolls system should be worked out in detail before the project is authorized. In this connection the resolution would permit the work to proceed while plans for user charges were being worked out. In taking the position that such procedure would be satisfactory, the subcommittee, as it said,

was mindful of the fact that Panama Canal "was originally authorized in 1904 and that the question of tolls was not considered by Congress until 1912 when construction was well under way and was settled in 1914 just before the opening of the canal."

Estimates included in the report indicate that the cost of the project would be \$720 million of which the United States would pay \$490 million and Canada \$230 million. The cost of navigation works to be "liquidated" by toll charges is put at \$398 million, of which the United States would pay \$330 million and Canada \$68 million. Under the resolution only the new navigation projects would be subject to toll charges, in which connection the subcommittee observes that the measure "properly excludes from self-liquidation the cost of work done in the past."

Interest during construction, amortization and other carrying charges are calculated on different bases, the subcommittee coming up with an estimate that the annual charges would be about \$15 million and a "highly conservative" estimate that they would not exceed \$21 million. From its consideration of traffic estimates and estimated toll revenues, the subcommittee is satisfied that such charges would be covered to make the project "self-liquidating." It said that opponents had estimated the annual toll revenue at \$13 million, "which is only \$2 million less than the more favorable estimate of \$15 million required to meet annual charges." It was the subcommittee's general conclusion that it is "feasible and practical" to make the seaway "self-supporting and self-liquidating, even at the high construction costs prevailing in the year 1947." And, in this connection, it "takes cognizance of the position of several opponents that they would not oppose this project if it can be proved to be self-supporting and self-liquidating."

The report concluded with recommended amendments to the resolution. One such amendment would provide for the collection of tolls on passengers carried by vessels using the new navigation facilities. The present tolls provisions are confined to cargo. Another amendment would clarify the tolls provisions to insure that they would apply with respect to new works on the whole "Great Lakes-St. Lawrence system," and not only on new works on the river.

The minority report complained first that the joint-resolution procedure, which avoids the necessity of obtaining a two-thirds Senate vote, would have the effect of annihilating the treaty powers of the Senate. The alleged "agreement," the report added, "is manifestly a treaty."

Disputing the majority's advocacy of the project as a measure of national defense, the minority asserted that the seaway would be constructed as a lock facility "in the most exposed and vulnerable part of continental United States (except Alaska)" at a time when Congress was considering recom-

mendations for conversion of the Panama Canal into a "safe sea-level channel." The minority also suggested that "black-out" navigation of wartime "in these notoriously treacherous waters could do as much damage to vessels, almost, as could direct enemy impact." It went on to recall how time was of the essence in the use of ocean shipping during World War II. "If the seaway had been constructed," the report added, "it is difficult to assume that ocean-going vessels would have been used in the time-consuming service of interior points." Mention is also made of the short shipping season on the St. Lawrence and Great Lakes, a matter which "the majority conspicuously neglects to discuss in their report."

With respect to the traffic estimates, "adopted by the majority, apparently, as gospel," the minority points out that the figures were presented by Secretary of Commerce Harriman as "very rough estimates." In the absence of what it considered more reliable figures, the minority accepted the estimate of 25,000,000 tons presented in the so-called St. Lawrence Survey report of 1941, and subscribed to by Dr. Julius H. Parmelee, vice-president of the Association of American Railroads and director of its Bureau of Railway Economics. Dr. Parmelee's estimate included only 16,000,000 tons of new traffic annually, the remaining 9,000,000 tons being that already moving on the existing channels.

Dealing with the 16,000,000 tons of new traffic, which is that "presumably destined to ease the strain" on existing ports and the railroads, the minority suggested that 8,000,000 tons of the new traffic would move in each direction over the seaway, with war freight moving "predominantly one way." It pointed out that the Atlantic and Gulf ports handle over 200 million tons a year, adding that "even if the seaway were not interrupted by accident, sabotage, or bombing, the easing of the strain on these port facilities would be about 4 per cent."

The dissenting senators do not believe that "this relatively insignificant amount of easement can justify the seaway as a national defense asset."

"As to the question of easing the strain on our railroads during wartime, we see even less easement," the report continues. "During the period 1941-44 the railroads originated an annual average of 1,405,000,000 tons. The easement which the seaway could have made possible, therefore, would have been substantially less than 1 per cent—approximately 0.06 per cent. . . . The solution to the wartime problem of burdened railroads, car shortages, and crowded ports falls outside the scope of this report. But it should at least be mentioned that the fact remains that these problems were solved and were successfully solved during World War II without the aid of a St. Lawrence seaway—a seaway which could be rendered temporarily or permanently impotent with the cutting of a single fuse

or the dropping of a lone, well-aimed bomb."

The minority also presented arguments against the majority's suggestion that the seaway would permit the development of facilities for the building of ocean-going ships in the Great Lakes area. Meanwhile, the dissenting senators conceded that the power phase of the project might be justified from a national-defense standpoint; but they insisted that this was no reason to build the seaway, too.

The minority's discussion of the "self-liquidation" phase opened with the call for an inquiry by some such agency as the I. C. C. It went on to present figures as to the prospective traffic which would be subject to tolls, calculating also that the annual carrying charges might be such as to require tolls of from approximately \$5 to \$13 per ton. The maximum toll permitted by the resolution would be \$1.25 per ton. The dissenting senators made no "sweeping claims" as to the finality or authoritativeness of their figures; but they emphasized again their conviction that "plain common sense dictates the need for an unbiased study of the question in the light of the situation today." It was also emphasized that the majority failed to mention the fact that 30 steamship companies "expressed strong convictions in opposition to the project and stated that their vessels would not use the seaway if constructed."

Meanwhile, the National St. Lawrence Project Conference, of which Carroll B. Huntress is chairman, has issued a pamphlet entitled: "Is There a Case for St. Lawrence Power?" The pamphlet is described as one which presents results of an inquiry "into the soundness of some of the outstanding arguments that have been put up either for or against the development and more particularly an inquiry as to the legislation now pending in Congress."

Air Policy Report Goes to President

Study board favors coordinated air-surface carrier operations

Surface carriers, desiring to develop air-transport services as part of coordinated operations, should not be automatically prevented from doing so "simply on the grounds that they are surface carriers—as now appears from the record to be the case," President Truman's Air Policy Commission said in a report made public this week. The commission was created by the President to investigate all aspects of civilian and military aviation and to recommend an integrated air policy.

The foregoing recommendation with respect to coordinated air-surface carrier operations was accompanied by another which called for prevention by

the Civil Aeronautics Board of control by surface carriers of the nation's air transportation system or any "important segment thereof." The commission followed through to recommend enactment of legislation clarifying these issues, the report observing that there are "differences of opinion" as to the intent of the Civil Aeronautics Act of 1938 and that the question of whether or not surface carriers should be permitted to enter the air transport business is an "important policy matter."

The A. P. C.'s recommendations are the result of a five-months' study, during which time, it said, it consulted on all phases of aviation with the best qualified government and private sources. As reported in *Railway Age* of November 1, 1947, page 53, several railroad officers, including R. V. Fletcher, former vice-president, research, and president, and now special counsel, Association of American Railroads, recommended at hearings before the A. P. C. that restrictions imposed by the C. A. B. against entry into the air transport field by railroads and other carriers be removed. The railroads also proposed the consolidation of all federal transport regulation under the jurisdiction of a single agency.

With respect to the latter suggestion, the A. P. C. recommended that "some time within the future" all executive transportation functions of the government should be centered in the Department of Commerce under a Secretary of Transportation. The independent semi-judicial bodies in the transportation field should remain independent, it said, and should be "brought into the Department of Transportation for administrative housekeeping purposes only."

Meanwhile, the commission recommends that the C. A. B. be located for "housekeeping purposes only" within a proposed Department of Civil Aviation, which also would absorb the functions of the Civil Aeronautics Administration. The A. P. C. also would increase the membership of the C. A. B. from five to seven in order that the practice of the Interstate Commerce Commission of operating by divisions may be adopted. It also would raise the salary of C. A. B. members to \$15,000 annually.

Observing that the domestic trunk air lines suffered an operating loss of approximately \$22,000,000 in the fiscal year ending June 30, 1947, the A. P. C. conceded that the air lines are now passing through one of the most serious crises of their history. As a means of coping with this situation, it suggests the carriage of first-class mail by air where delivery would be expedited. In this connection, it noted that the Post Office Department has estimated that air transportation would expedite the movement of an additional 146,000,000 ton-miles of domestic first-class mail and result in a loss of approximately \$5,000,000 to domestic surface carriers if such mail were to be carried by the air lines whenever such handling offers faster service. "The taking of a large volume of first-class mail now handled by surface car-

riers and giving it to the air lines would not be discriminating against the surface carriers if the service to the public were better," the A. P. C. said.

The commission said that Congress will undoubtedly consider the fact that carrying first-class mail by air without surcharge, whenever delivery can be expedited thereby, will involve, according to Post Office Department figures, an additional cost to the government of some \$96,000,000. "This loss," it said, "would come from a decrease in the present profit made on first-class, 3-cent mail, a profit which now subsidizes the carriage of other classes of mail. . . . Our recommendation is that the step of carrying by air all first-class mail which can be expedited thereby and the step to parcel post service by air not be taken until the air lines achieve a satisfactory regularity of service."

In its discussion of air safety and regularity, the commission recommended that new types of transport planes be operated regularly on non-passenger schedules before passengers are carried, adding that C. A. B. economic control over contract carriers would tend to increase safety.

"Air lines will not have mass transportation until people are reasonably certain that they can depart and arrive on schedule," the A. P. C. said in a summary of its findings. "For safety and regularity, a basic requirement is a nationwide system of air-traffic control, navigation and landing aids. The federal government must accept the financial burden of providing these aids until those who use them are in a financial position to pay their share of the cost. . . ."

Another recommendation contained in the report is that Congress appropriate each year the full amount of federal funds permissible under the Federal Airport Act of 1946, which authorizes financial grants totaling \$500,000,000 within the United States over a seven-year period. The 1947 appropriation, according to the A. P. C., was \$45,000,000. It added that although the President requested \$65,000,000 for 1948, Congress appropriated only half that amount.

Among other things, the A. P. C. also observed that the air lines have "traditionally operated" on low working capital, adding that current assets accumulated during the war years were depleted by the purchase of new airplanes and by operating losses.

"Loans secured by equipment are difficult to obtain in the air transport field," it continued in part. "Railroads are able to secure financial aid to buy new equipment through the sale of equipment trust certificates at low interest rates without restrictions on their operations or finances. It would be desirable if the equipment-trust method of financing, so successful with railroads, could be used for the purchase of air transport equipment."

The A. P. C. said it is for the C. A. B. to decide whether or not more common carriers of property by air should

be certificated. "We believe," it went on, "that in making their decision, the board should avoid impairing the soundness of the existing air transport system by spreading the present and potential traffic among too many separate carriers. If the board finds that the public convenience and necessity does require some additional common carrier operators, we hope that it will give weight to the records built up by any of those contract operators that have proven their ability to operate economically and efficiently and now desire common carrier status."

Declaring that there is a "real need" for feeder air lines in those areas whose topographical features make surface connection between cities unsatisfactory, the A. P. C. recommended that the present experimental period for feeder air lines remain at three years. At the same time, it suggested extensions of such periods if "it becomes evident that the three-year period can be extended without burdensome cost in mail pay."

Another document which has been made public is the sixth and final report of the President's Special Board of Inquiry on Air Safety. This body recommended, among other things, that the air lines appoint full-time safety directors and safety staffs and that air lines and pilots should review the ratio of base pay to flight pay to verify that a sufficient wage is assured so that uncertainty about prospective earnings cannot endanger public safety.

Barge Lines Seeking More Public Money

Budget proposes to supply \$3,000,000 in new capital

Purchase by the government of an additional \$3,000,000 of capital stock of the Inland Waterways Corporation, operator of the Federal Barge Lines, is proposed in the fiscal 1949 budget which President Truman submitted to Congress on January 12. During the current fiscal year ending next June 30, I. W. C. will have sold the last of its holdings of government securities, thus precluding the financing of further deficits in that manner.

The budget reveals that the anticipated deficit for the current fiscal year is \$825,900, which would follow upon a fiscal 1947 loss of \$2,089,552. With benefit of the proposed new government investment, however, the corporation estimates that it will have a net income of \$1,145,300 in fiscal 1949. That I. W. C. has been somewhat optimistic in previous estimates is indicated by its record in that connection over the past few years. Its submission in the budget for fiscal 1947 put the expected fiscal 1946 deficit at \$1,497,661, whereas the actual loss turned out to be \$2,383,406. In the budget for fiscal

1948, it estimated that the deficit for fiscal 1947 would be \$1,172,331, yet the actual loss, as noted above, was \$2,089,552. And the prospective fiscal 1948 deficit of \$825,900 compares with an estimated net income of \$513,712 shown also in last year's budget.

I. W. C. is authorized to issue \$15,000,000 in capital stock, and the government has already subscribed \$12,000,000 of that amount. The present proposal is to appropriate \$3,000,000 to the Secretary of Commerce for the purchase of the remaining shares authorized. There was once a continuing authorization for the purchase of this stock; but the authorization was rescinded by Congress upon recommendation of the corporation's former president, the late General T. Q. Ashburn. As noted in the *Railway Age* of May 15, 1937, page 841, the recommendation was made in the general's fiscal 1936 report which said "it is apparent that the corporation will never need" the additional \$3,000,000 "unless it be the intention to further expand our operations." The general's subsequent report for fiscal 1937 noted that Congress had taken the recommended action; and then went on to say that the general's suggestion for cancellation of an appropriation was "unique in the annals of our government."

While the traffic fell short of estimates, the budget statement attributed I. W. C.'s poor showing in fiscal 1947 also to the officers' preoccupation with a "reorganization of administration and operations." This included the "task of adjusting personnel practices and labor relations to conform with many new applicable laws and regulations." These matters were said to have "seriously delayed any progress on improving the productive efficiency of the operation." At the same time, the statement continued, "a foundation has been laid for more efficient operation in the future."

Among favorable factors, the statement listed the lengthening of the navigation season on the Mississippi, the "slow progress" made in improving terminal efficiency, the higher rates which came as a result of upward adjustments in rail rates, and "various minor improvements" in efficiency which are expected to be reflected in an improved showing for fiscal 1948. The "underlying factor affecting the whole operation" was identified as the "accelerating deterioration of the corporation's old equipment." Thus there was considerable discussion in the statement

(Continued on page 76)

Middleton is New President of Railway Business Association

P. Harvey Middleton, executive vice-president and treasurer of the Railway Business Association, was elected president of the association for the fiscal year ending on October 31, 1948, by its Executive committee on January 6. He succeeds Harry A. Wheeler, president

since 1932, who has retired and who becomes honorary vice-president.

The new president has been an officer of the R. B. A. since 1913, with the exception of the years 1920 and 1921, when he was in Europe as an officer of the foreign department of the Guaranty Trust Company of New York. His early training was as a newspaperman, and just prior to his first connection with the R. B. A. he was assistant to the managing editor of the New York World.



P. Harvey Middleton

Mr. Wheeler was born on May 26, 1866, at Brooklyn, N. Y., and received an honorary LL. D. degree from Northwestern University in 1913. He was president of the Credit Clearing House from 1900 to 1910, and from the latter date until 1929 he was vice-president and president successively of the Union Trust Company at Chicago. He served as vice-chairman of the First National Bank in Chicago from 1929 to 1932, at which time he became president of the R. B. A. Mr. Wheeler was president of the Chicago Association of Commerce in 1910, and president of the U. S. Chamber of Commerce from 1913 to 1918.

Air Brakes and Journal Boxes

An A. A. R. Mechanical Division letter dated December 30 calls attention to interchange inspection rules 60 and 66 which require that where stenciling so indicates, cars overdue for periodic attention to air brakes or journal boxes must be given this attention by the railroad or car owner having such cars in its possession.

The circular states that information reported by a number of roads serving busy loading terminals shows an ever-increasing number of cars arriving overdue for this periodic attention, and it is evident that a great many roads and car owners are not performing their proper proportion of this work. The complaints are substantiated by the Mechanical Inspection Department's routine investigations conducted on 62 railroads and at 24 private car owners'

plants. One day's actual inspection showed that:

Cars outshopped having journal boxes or air brakes overdue for periodic inspection and attention totalled 142 for journal boxes and 23 for air brakes, including private car owners.

Empty cars in yards approved for service having journal boxes or air brakes overdue for periodic inspection and attention numbered 297 and 39, respectively.

Empty cars at freight houses approved for service having journal boxes or air brakes overdue for periodic inspection and attention amounted to 56 and 7, respectively.

The matter has been before the Arbitration Committee and the situation is not considered to be at all satisfactory, particularly as to cars released from repair tracks when they are overdue for periodic attention to air brakes or journal boxes or both. This results in subsequent shopping of cars and holding them out of service for this work, involves unnecessary additional expense and is an unfavorable factor with respect to the car supply situation.

The circular requests that all railroads and private car owners check into these conditions on their shop and repair tracks and take such steps as may be necessary to correct the situation.

Stainless-Steel Car Meets Squeeze Test Requirements After Ten Years

Ten years' continuous service over 2,500,000 miles has had no appreciable effect on the structural strength of the all-stainless steel Budd-built railway car which was subjected to tests in the Company's laboratory here, according to General Gladeon M. Barnes, vice-president in charge of engineering.

The tests, a joint operation by engineers of the Budd Company and the Atchison, Topeka & Santa Fe, were conducted under the supervision of Dr. Michael Watter, chief of Budd's Research and Development Division. They were observed by an official representative of the Association of American Railroads. Testing operations took place in Budd's testing plant.

This car is one of 100 chair cars delivered to the Santa Fe during 1937 and was built before the present higher-strength requirements for railway passenger cars were established. After a review of the original engineering analysis, the railroad was assured that, because of the corrosion-resistant character of the stainless-steel structure, the strength margins in the car as originally built were adequate to meet the present A. A. R. requirements of 800,000-lb. compression loads, with minor reinforcements to various low-alloy steel elements of the structure including the end underframe unit, coupler, coupler carrier, center plate, and collision posts. No modifications were made to the stainless-steel structure. The car with-

stood the 800,000-lb. compression load without permanent deformation and without cracking a single window pane. All glass had been left in place for the test.

Shortly after the test the car was returned to service by the Santa Fe.

Hearing on Western Coach Fare Increase to be Held January 27

The recent petition filed with the Interstate Commerce Commission by certain western railroads for authority to increase their coach fares has been docketed as No. 29897 and assigned for hearing January 27 at the Main Post Office Building, Chicago. Commissioner Rogers and Examiner Fuller will preside. The proposed new bases of fares was outlined in the *Railway Age* of January 10, page 50.

Splawn Reappointed to I. C. C.

Walter M. W. Splawn has been nominated by President Truman for a new seven-year term, ending December 31, 1954, as a member of the Interstate Commerce Commission. The nomination was sent to the Senate on January 14.

Dr. Splawn has been a member of the commission since 1934, and served as its chairman during 1938. His previous term expired December 31, 1947, but he has continued to serve under that provision of the Interstate Commerce Act which permits a commissioner to carry on until his successor qualifies.

Freight Car Loadings

Loadings of revenue freight for the week ended January 10 totaled 831,447 cars, the Association of American Railroads announced on January 15. This was an increase of 149,409 cars, or 21.9 per cent, above the preceding week which included the New Year holiday, an increase of 494 cars, or 0.1 per cent, above the corresponding week last year, and an increase of 58,559 cars, or 7.6

per cent, above the comparable 1946 week.

Loading of revenue freight for the week ended January 3 totaled 682,038 cars, and the summary for that week as compiled by the Car Service Division, A. A. R., appears below.

In Canada—Carloadings for the week ended January 3 totaled 53,484 cars as compared with 52,803 cars for the previous week and 50,455 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
January 3, 1948	53,484	28,195
January 4, 1947	50,455	29,056

Opposes Transport As Cabinet Post

The Southwest Shippers Advisory Board, meeting in Dallas on January 9, went on record as opposing pending federal legislation which would establish a department of transportation in the President's cabinet.

Frank Cross, chairman of the board, said the government is well represented by the Interstate Commerce Commission. "By opposing Senate Bill 1812 and House Bill 4595, we seek to keep the transportation industry out of politics," he added.

The board forecast an increase of 4.5 per cent in carloadings for the first quarter of 1948 over the same period of 1947.

Increases are expected for all commodities with the exception of flour, mill products, fresh fruit and livestock. The largest increase is expected in building materials. "The car supply is considerably improved," Chairman Cross reported.

I. C. C. Hearings Completed on Two Per Diem Complaints

With the receipt of additional testimony from numerous railroad officers and students of transportation as to what factors should be employed in cost stud-

Revenue Freight Car Loadings

For the Week Ended Saturday, January 3			
District	1948	1947	1946
Eastern	120,246	127,631	122,597
Allegheny	144,918	149,155	139,810
Pocahontas	57,001	60,494	49,447
Southern	124,660	119,612	110,006
Northwestern	69,820	72,826	74,826
Central Western	107,562	108,423	101,969
Southwestern	57,831	49,287	54,323
Total Western Districts	235,213	230,536	231,118
Total All Roads	682,038	687,428	652,978
Commodities:			
Grain and grain products	37,523	44,673	43,941
Livestock	9,613	14,365	20,908
Coal	169,047	167,751	145,730
Coke	14,394	13,635	12,815
Forest products	34,881	32,891	26,273
Ore	11,841	10,588	9,168
Merchandise l.c.l.	86,036	97,311	97,786
Miscellaneous	318,703	306,214	296,357
January 3	682,038	687,428	652,978
December 27		599,357	627,967
December 20		832,130	836,185
December 13		854,159	828,751
December 6		878,588	729,084

ies used for determining a fair and adequate per diem rate, hearings were concluded last week at Washington, D. C., on two per diem complaints which have been filed with the Interstate Commerce Commission.

As noted in *Railway Age* of January 10, page 44, and previous issues, one complaint, filed by the short lines, assails the per diem rates which have been in effect since February 1, 1945, and asks the commission to cut the rate to 95 cents, or to other such basis as it may determine, and to award reparations. The other complaint was filed by six western roads—the Atchison, Topeka & Santa Fe, Illinois Central, Chicago, Burlington & Quincy, Northern Pacific, Great Northern and Denver & Rio Grande Western—which allege that the former \$1.25 rate, since raised to \$1.50, is too low and therefore a contributing factor to the freight car shortage. The complaints are docketed as Nos. 29587 and 29751, respectively.

In addition to advocating a per diem rate of not less than \$2, the six western carriers also have suggested that owning roads should receive additional rental of 50 cents daily, during periods of car shortage, to cover earnings losses which otherwise could have been averted had their own cars been available.

Among the witnesses appearing at the final sessions of the hearing was C. E. Day, manager of the Southern Pacific's bureau of transportation research, who introduced several exhibits calculated to show, among other things, that (1) the cost of owning a freight car at current price levels is \$1.276, as compared to approximately \$1.23 in 1946; and (2) annual repair costs amount to \$137 per car or \$0.00034 per car mile for cars operated.

Mr. Day's conclusions were challenged by three witnesses for the six western roads—W. A. Wallis, professor of statistics and business economics, University of Chicago; L. C. Sorrell, professor of transportation, University of Chicago, and J. P. McDonald, assistant general auditor of the Santa Fe. They asserted in part that several of the exhibits and conclusions of Mr. Day, particularly his references to the relationships between repair costs and car miles operated, contained numerous infirmities, invalid assumptions and incorrect correlations.

The problems confronting a typical terminating road were described by S. F. MacKay, general manager, New York, New Haven & Hartford, who testified that per diem paid by the New Haven in 1946 amounted to \$7,151,067, as compared with \$2,344,881 it received for use of its cars by foreign roads. At the same time, he said that the New Haven, as of December 15, 1946, owned 3,772 box cars, as compared with an ownership of 25,244 box cars on January 1, 1922.

"The New Haven acquired a heavy ownership of box cars starting in the early 1900's due to pressure and arguments very similar to those now being presented," Mr. MacKay said. "We found by sad experience that we could

not get them used by other lines in periods of surplus. As an example, in 1921 the New Haven received from its connections 62,179 empty New Haven box cars moving in the general direction of loaded traffic. This empty return continued and from 1929 to 1938 there was an average return of 57,628 empty New Haven cars yearly. This unusable ownership was accordingly reduced . . . to have done otherwise would have continued a wasteful and inefficient situation."

Mr. MacKay also testified that the New Haven owns a sufficient number of box cars to take care of its local traffic. At the same time, he also told the commission that the New Haven receives more box cars from its connections than it requires for its inter-line loadings.

Another terminating-road witness, S. E. Miller, assistant general manager of the Boston & Maine and Maine Central, told the commission that although the B. & M. now has about 8,000 box cars on line, as compared to an ownership of approximately 3,150, the road also was encountering difficulties in procuring the return of its box cars and other freight equipment. Of its total box car ownership, he said, the B. & M. now has about 590 of its own cars on line. Mr. Miller also asserted that the B. & M. usually has a sufficient number of off-line cars to be loaded for return to owning roads under A. A. R. Car Service Division rules and an adequate number of box cars to handle its local traffic.

Lawrence Richardson, assistant general manager of the New York, Susquehanna & Western, said that road showed a net loss of more than \$19,000 in 1946 in the repair of cars. Mr. Richardson said that 71.5 per cent of the total charges in Account 314 was not returned to the Susquehanna, and was, as a result, a "user charge." Another witness was J. M. Hood, president of the American Short Line Railroad Association, who offered brief testimony in rebuttal of certain evidence presented at a previous series of hearings in the case.

Chicago Roads Report Heavy Holiday Passenger Traffic

Practically all passenger railroads serving Chicago reported travel greater than a year ago for the Christmas-New Year holiday period. The equipment situation appeared better, particularly with respect to coaches, and few cases of standees were reported. Roads enjoying substantial increases included the Illinois Central which estimates travel at about 30 per cent over the same period a year ago. Four extra coaches were added to the consist of the "City of New Orleans," and extra sections were operated between Chicago and Memphis and New Orleans and Memphis for a ten-day period. The Chicago, Rock Island & Pacific enjoyed the greatest volume of holiday travel on record.

The Pennsylvania reported passenger revenues at Chicago up 23 per cent over the holiday period of 1946. Advance

estimates indicate that the New York Central's passenger traffic in and out of Chicago exceeded that of any previous similar period. The Chicago & Eastern Illinois reported travel 8 per cent above that of 1946. Gulf, Mobile & Ohio travel out of Chicago was up about 10 per cent for the two-holiday period, while travel on Sunday, January 4, was almost double that of a year ago, requiring operation of three sections of the "Abraham Lincoln" northbound and two sections southbound. Receipts from passenger traffic were 62 per cent greater on the Chicago, Indianapolis & Louisville, making the 1947 holiday season the Monon's busiest since 1927. A 16-car "back-to-school" special on January 4 carried 1,003 passengers. Travel on the Chicago, Burlington & Quincy rose about 5 per cent over the 1946 holiday season.

All other Chicago roads reported travel heavier or at least equal to that of the previous Christmas-New Year holiday period.

Lehigh Valley Employees to Study Diesel Engines

Approximately 40 Lehigh Valley mechanical and operating-department employees, in groups of from 10 to 15, will begin on January 19 a course on Diesel locomotive operation and maintenance at the American Locomotive Company's school in Schenectady, N. Y. The study period will be from 8:30 a. m. to 4:30 p. m. daily for two five-day weeks.

Cannon to Adjustment Board

Clarence S. Cannon, formerly chief of personnel of the Seaboard Air Line, has been appointed a member of the National Railroad Adjustment Board at Chicago, and has been granted leave



Clarence S. Cannon

of absence from the Seaboard to assume these duties. Mr. Cannon was born on August 16, 1883, at Summerton, S. C., and entered railroad service in 1898 as an agent-operator on the Atlantic Coast Line. He subsequently

served the Southern for five years in the same capacity.

Mr. Cannon went to the Seaboard in 1905 as a telegraph operator at Tampa, Fla. He was promoted to train dispatcher in 1907, chief dispatcher in 1915, trainmaster in 1917, assistant division superintendent in 1924 and division superintendent in 1925. On May 24, 1937, he was named director of personnel of the road, with headquarters in Norfolk, Va.

I. C. Speeds Up Freights From St. Louis to South

The Illinois Central, on January 3, inaugurated a new fast freight schedule between St. Louis, Mo., and New Orleans, La., cutting a full delivery day from the present schedule, the road announced last week. Oscar L. Grisamore, general freight traffic manager, said the new schedule affords second morning delivery at New Orleans, Jackson, Miss., and Meridian.

The improved service will be 14 hrs. faster to Meridian, more than seven hrs. faster to Jackson and five and one-half hrs. faster to New Orleans, it was stated. Trains will depart from East St. Louis at 8:15 p. m. and arrive at Jackson at 5:20 p. m. on the following day, and at New Orleans and Meridian the second morning at 12:30 a. m. and 2 a. m., respectively.

Forty-Hour Week For Rails?

General chairmen of the seven non-operating brotherhoods comprising the Railway Employees Department of the American Federation of Labor met in Chicago on January 8 to discuss the advisability of seeking a 40-hr. week on the present 48-hr. week pay basis. Some of the seven unions which, together, represent about 250,000 shop craft workers, were reported as favoring retention of the present 48-hr. week with a straight pay increase, but Fred N. Aten, president of the Railway Employees Department, declined to report the final outcome of the meeting. Whatever decision was reached at Chicago will be the recommendation of the A. F. L. group at the January 14 meeting of the Railway Labor Executives' Association in Washington, D. C.

Also on January 8 it was reported from Cleveland, Ohio, that the Brotherhood of Railroad Trainmen would start a movement for 15-day annual paid vacations and for overtime pay for Sunday and holiday work. General chairmen directed A. F. Whitney, it is reported, to take steps to implement new wage demands "should inflation continue on its reckless orgy."

Faricy Notes Improved Car-Supply Conditions

Although railroad freight carloadings for the week ending January 3 were about the same as those in the corresponding week in 1947, the reported

average daily freight car shortage for the 1948 week was 1,305 cars as compared with 16,290 during the same week last year, William T. Faricy, president of the Association of American Railroads, said in a January 9 statement.

The greatest reduction in the average daily freight car shortage, he explained, was in box cars, which showed a reported shortage of only 291 during the week ending January 3, while during the corresponding week last year it was 12,333. The average daily shortage of gondolas and hoppers dropped from 3,557 during the week ending January 4, 1947, to 935 during the same week this year.

Frisco Divided Into Districts

In order to effect closer supervision of the St. Louis-San Francisco, the road's operating divisions will be grouped into two districts—an Eastern and Western—effective January 18, Clark Hungerford, president, announced this week. The Eastern district will consist of the Eastern, Southern and River divisions and the terminals at St. Louis, Mo., Memphis, Tenn., and Birmingham, Ala. The Western district will be made up of the Northern, Western, Central and Southwestern divisions and the Kansas City, Mo., terminal. Both districts will be under the jurisdiction of F. H. Shaffer, general manager at Springfield, Mo., and each district will be headed by an assistant general manager, with headquarters at Springfield. (For appointments made as a result of these changes, see the "officer's" columns in this issue).

November Accident Statistics

The Interstate Commerce Commission has made public its Bureau of Transport Economics and Statistics' preliminary summary of steam railway accidents for November, 1947, and for last year's first 11 months. The compilation, which is subject to revision, follows:

Item	Month of November		11 months ended with November	
	1947	1946	1947	1946
Number of train accidents*	1,413	1,364	15,328	14,173
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	99	125	1,329	1,422
Injured	84	81	1,108	1,068
Passengers on trains:				
(a) In train accidents*				
Killed	—	—	33	51
Injured	8	90	1,119	1,354
(b) In train-service accidents:				
Killed	3	3	30	37
Injured	212	249	2,605	2,759
Travelers not on trains:				
Killed	1	1	14	15
Injured	90	83	862	942
Employees on duty:				
Killed	44	57	632	608
Injured	2,670	3,049	32,642	35,019
All other nontrespassers:**				
Killed	195	168	1,796	1,778
Injured	716	582	5,990	5,981
Total—All classes of persons:				
Killed	342	354	3,834	3,911
Injured	3,780	4,134	44,326	47,123
* Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former cause damage of more than \$150 to railway property.				
** Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties for all classes of persons, including both trespassers and nontrespassers, were as follows:				
Persons:				
Killed	180	163	1,616	1,623
Injured	525	378	3,736	3,784

Waugh Twin Cushion Draft Gears Approved for All Freight Cars

The Association of American Railroads has issued an official draft gear certificate approving the unlimited application of Waughmat twin cushion draft gears for all freight cars accepted in interchange service. As a result of the manufacturing economies caused by the increased sales, which, in turn, have been made possible by the A. A. R. action, the Waugh Equipment Company has announced a price reduction of 7½ per cent, retroactive to January 1, on all twin cushion draft gears ordered for freight and passenger cars. The reduction applies to all unfilled orders on the company's books.

Ambitious Transportation Plans for New Jersey

Governor Alfred E. Driscoll of New Jersey, in his annual message to the state legislature on Tuesday, January 13, startled his audience with the boldness of his proposals for improving transportation conditions throughout the state, and particularly in North Jersey. It is proposed to create two union passenger terminals to replace those on the water front. One of these will be "an integral part of the Newark Airport, which may be used by the railroads reaching the North Jersey metropolitan area from the South." It was proposed, also, to develop a rail terminal in the Hackensack meadows, servicing the railroads reaching the North Jersey metropolitan area from the North and Northwest. Eventually these two terminals would be connected and a new railroad tunnel constructed under the Hudson, giving direct access to uptown New York.

The Governor indicated that the linking of rail, sea, air and bus facilities in the North Jersey metropolitan area would make that section the only point in the world where coordinated major

facilities of a deep water harbor and docks, of passenger and rail freight terminals, and of complete air line service would be available. Other advantages mentioned were relief to overburdened highways, with better rail connections serving more people, and opening of new areas for industrial and commercial enterprises.

The proposals came so unexpectedly and were outlined in such broad fashion that railroad officers are frank in admitting that they don't understand just how it will work. The Governor also recommended speeding up of the highway program with a \$150 million dollar bond issue, to help finance a five-year building program, which might possibly include tolls on luxury highways.

Pullman Standard's Freight Car Output Up 100 Per Cent

During 1947 the Pullman-Standard Car Manufacturing Company built nearly twice the number of freight cars it produced in 1946 and, given the necessary carbuilding materials, the company can substantially increase its output of new cars in 1948, Champ Carry, president, announced this week. The firm's current backlog of unfilled orders was placed at 23,000 freight cars, 1,400 passenger train cars and 700 transit vehicles.

"Our production of more than 16,000 domestic freight cars of all types during 1947 compares with 8,382 such cars delivered in 1946," Mr. Carry stated. "In addition, we delivered 6,460 cars to the French railways during the early part of the year. Deliveries reached a new postwar peak in November, 1947, and we expect the upward trend to continue in 1948."

Deliveries of new passenger equipment by Pullman-Standard during 1947—although far below the company's plant capacity—also bettered the 1946 output, Mr. Carry added, with approximately 340 units completed.

Want List of Rail Stations With Handling Equipment

Shippers at the Materials-Handling Exposition meeting at Cleveland, Ohio, this week made a suggestion that the Association of American Railroads put out and keep up to date a list of stations at which materials-handling equipment is available for loading and unloading pallets and skids from railroad cars. It was argued that shippers and railroads would then be able to obtain all advantages attendant upon use of such facilities.

RR Rate Bureaus "Efficient Devices"; Keep ICC Out

Railroad conferences are not impartial judicial agencies, but "neither would individual carriers be impartial if separately approached", Professor Stuart Daggett, of the University of

California, stated at the transportation and public utilities session of the American Economic Association in Chicago on December 30. Railroad rate bureaus, he said, are efficient devices for considering rate changes in which more than one road is interested "because they provide place, time and established procedure for discussion." Shippers also benefit, Professor Daggett declared, because notice of all changes is published before action is taken; because anyone who desires is given opportunity to be heard; and because any shipper may have a proposal of his own docketed and may appear from a lower to a higher committee if the first decision is adverse.

Referring to Department of Justice opposition to the Reed-Bulwinkle bills, which would place rate bureaus and conferences under jurisdiction of the Interstate Commerce Commission, the speaker said there is little evidence that the Department of Justice has impressed public opinion by its criticisms of rate bureaus and conferences. The department's contentions that rate bureaus eliminate competition was described by Professor Daggett as "an over-statement which should be obvious to anyone familiar with the efforts of rail traffic officers to attract business from each other or to any observer who is acquainted with the structure of railroad tariffs."

There is some reason to expect, however, the professor continued, that traffic associations may modify the intensity of inter-railroad rivalries. "Individual railroads are not bound by decisions of traffic associations, but they do accept most of them," he said. "This alone is not proof of restraint, partly because requests for rate changes initiated by shippers and denied by associations frequently contemplate reductions which railroads would individually refuse, and partly because independent rate cutting, with or without an association, is expensive when it starts a fight."

Discussing the Department of Justice's criticism of the slowness of association procedure, the professor said "the extent of delay depends on particular cases, and that non-contentious proposals seem to be promptly handled. Proposals to make alterations in a tariff structure deserve careful preliminary consideration. Rate stability has its merits as well as rapidity of change."

In his summary, Professor Daggett expressed his opposition to a representative of the I.C.C. sitting in a rate conference. The commission, he observed, should remain a regulatory rather than an administrative body. "It is not unreasonable," he concluded, "to believe that railroad associations do, on the whole, encourage constructive consideration of the larger problems of the railroad industry and that regulatory control is sufficient, in these days, to protect the public from abuse. Associations are extremely useful from the technical point of view. If these simple

conclusions are correct, rate bureaus should be continued, with such regulations as may seem appropriate but yet substantially in their present form."

Professor Ralph Dewey, of Ohio State University, who spoke at the same session of the American Economic Association, asserted that if the Department of Justice were successful in outlawing rate conferences, bureaus and associations, there would result mergers which would intensify those features of transportation which the Department of Justice now considers objectionable in rate associations. The real issue is not one of monopoly versus competition, he said, but to insure that the railroad traffic associations serve the public interest.

Frisco Starts Monthly Magazine

The St. Louis-San Francisco last week introduced its new employee magazine, an eight-page tabloid titled "All Aboard." The paper will be issued monthly as successor to the quarterly magazine, "Frisco First," publication of which the road suspended early last year.

In a message to the company's employees, Clark Hungerford, president, said the magazine would publish "full and accurate information about the activities of your railroad, its problems, its hopes and its accomplishments." Paul Morris, publicity manager of the Frisco, is supervising production of the magazine.

Retirement Awards, Payments Continue Rise, Board States

Activities of the Railroad Retirement Board during October, spurred by the board's efforts to reduce the backlog of applications for benefits, were highlighted by sharp increases in awards and payments, according to the current issue of the R. R. B.'s "Monthly Review." New monthly and lump-sum awards numbered 16,513 for the month—a 60 per cent rise over the September figure—and benefit payments amounting to \$18,886,000 were \$1,211,000 above the previous month's total.

Unemployment benefit operations increased during the period, with applications and claims rising 23 and 29 per cent, respectively. Payments, up more than 20 per cent, totaled \$2,802,000 for unemployment in 98,126 claim periods. Almost 51,400 railroad workers received benefits.

In its sickness benefit activities, the board reported that the number and amount of payments for illnesses and injuries rose approximately 30 per cent. The 33,402 beneficiaries received \$2,513,000, and 1,143 women received \$148,000 in maternity payments during October.

F. R. P. Announces Annual Newspaperman Award

The Federation for Railway Progress, at its first anniversary dinner next February, will present an award to the newspaperman whose work, in the

opinion of a three-man committee, has contributed the most to progress in American railroading. The committee selecting the winner of the award, to be known as the F. R. P. Journalism Award, will be headed by M. Lincoln Schuster, of the publishing firm of Simon & Schuster, and will include William N. Leonard of Rutgers University, who represents the general public on the federation's executive council, and Thomas J. Deegan, Jr., director of public relations for the federation and the Chesapeake & Ohio.

Would End Passenger Service

The Youngstown & Southern has petitioned the Ohio Public Utilities Commission for permission to discontinue all passenger service on the road. This combination steam-electric line is currently operating a local and suburban electric car service for 19 miles out of Youngstown, Ohio. There is no passenger service on its steam division.

Accounting Division Will Meet June 29-July 1 at Cleveland

Chairman T. J. Tobin of the Accounting Division, Association of American Railroads, has announced that the division's next annual meeting will be held from June 29 to July 1, inclusive, at the Hotel Cleveland, Cleveland, Ohio. The opening of the convention on June 29 will be preceded on the 28th by the usual "open house" meetings of the division's various standing committees.

ORGANIZATIONS

P. J. Hogan, supervisor car inspection and maintenance, New Haven, was elected president of the **Eastern Car Foreman's Association** at a meeting on January 9. Other officers elected were: E. O. Dickinson, superintendent car department, Jersey Central—1st vice-president; C. N. Kittle, assistant superintendent equipment, New York Central—2nd vice-president; and Wilson Dizard, secretary, retirement board, American Car & Foundry Co., who has been re-elected secretary-treasurer. S. C. Lund, division car foreman, Erie, and Carl Dierks, assistant superintendent car equipment, Delaware, Lackawanna & Western, were elected to serve on the board of directors.

At the annual meeting of the **General Eastern Passenger Agents Association** held recently, the following were elected to serve during the ensuing year: L. J. Irvin, assistant general passenger agent, Florida East Coast—president; J. V. Fagan, general eastern passenger agent, Norfolk & Western—vice-president; C. F. Bradley, general agent, passenger department, Chicago, Rock Island & Pacific—treasurer; and O. H. Hoffman, general eastern passenger agent, Lehigh

Valley, and W. H. Rhodes, general eastern passenger agent, Chesapeake & Ohio, who were elected secretary and assistant secretary, respectively.

At a recent meeting of the **Long Island Traffic Club** the following were elected to office for the year 1948: president—J. J. Mahoney, Illinois Central; 1st vice-president—John Burns, Great Northern; 2nd vice-president—Tom Irwin, Jersey Central; and Barney McSweeney, Jersey Central, was elected chairman of the board of directors.

At the annual meeting of the **New England Traffic Club** held recently, the following were elected to office: president, J. W. Whalen, general passenger agent, New Haven; vice-presidents, R. G. Henderson, freight traffic manager, New York Central; A. M. Monahan, general agent, Erie; R. A. Potter, traffic manager, New England Confectionery Co.; and John P. Sloan, traffic manager, Crompton & Knowles Loom Works. Gerard J. Smith, manager, Wells Fargo Carloading Co., Inc., was elected secretary and treasurer.

The next meeting of the **Railway Club of Pittsburgh** has been scheduled for January 22, 8 p. m., at the Fort Pitt hotel, Pittsburgh, Pa. C. W. Doerr, vice-president of the American Bridge Company will be the guest speaker.

A dinner meeting of the **New England Railroad Club** will be held on February 10 at the Hotel Vendome, Boston, at 6:30 p. m. J. I. Yellot, director of research for Locomotive Development Committee, will present a paper entitled "The Coal-Burning Gas Turbine Locomotive" which will be illustrated by slides.

The **Industrial Packaging Engineers Association** recently elected the following officers for the coming year: Board chairman, R. F. Weber, of the International Harvester Company; president, P. O. Vogt, General Electric Company; vice-presidents, J. H. Singer, Rathborne Hair & Ridgeway Co., R. C. Sell, Koehring Company, and A. H. Dobler, Yale & Towne Manufacturing Co.; treasurer, J. L. Ware, Sears Roebuck & Co.; and secretary, Stanley Price, Western Electric Company.

The **Mid-West Shippers Advisory Board** will hold its 24th annual and 81st regular meeting at the La Salle Hotel in Chicago on January 23. William T. Faricy, president of the Association of American Railroads, will speak at the luncheon meeting on "The Railroad Outlook."

The **Southeastern Railway Diesel Club**, which meets in the Hotel Roosevelt, Jacksonville, Fla., the second Tuesday of February, April, June, August, October and December, observed its first anniversary on December 9, 1947. All-day meetings are held, the morning session assembling at 9:30, with luncheon intervening before the afternoon meet-

ing. C. W. Davis, master mechanic of the Florida East Coast, Miami, Fla., was chairman during the first year, and was succeeded at the annual meeting by W. D. Quarles, assistant chief of motive power, Atlantic Coast Line, Wilmington, N. C. The membership now numbers 281 and includes railroad men and representatives of the suppliers.

The **Pacific Railway Club** will meet at the Biltmore hotel in Los Angeles, Cal., on January 13, and at the St. Francis hotel in San Francisco, Cal., on January 15.

(Continued on page 76)

SUPPLY TRADE

Lewis A. Larsen has resigned as vice-president and director of the **Lima-Hamilton Corporation** to become chairman of the board of directors and chief executive officer of the **Superior Coach Corporation**, as reported in the *Railway Age* of January 10, page 144.

Mr. Larsen was born in Ridgeway, Iowa, on July 17, 1875. He began his career in 1895 as chief clerk in the office of master mechanic on the Chicago Great Western, at Oelwein, Iowa. In 1896 he was transferred to the motive power department at St. Paul, Minn., where he worked as chief clerk from 1897 to 1900, when he left to attend Northwestern University. He returned to the motive power department in 1901



Lewis A. Larsen

and, in 1902, was appointed chief clerk to the assistant general manager. In 1903 he joined the Northern Pacific at St. Paul, working as chief clerk to the superintendent of motive power until 1907. In that year he was appointed assistant to the vice-president in charge of manufacturing for the American Locomotive Company at New York, and served in that capacity until 1917, when he was appointed assistant comptroller. Mr. Larsen joined the Lima Locomotive Works (now the Lima-Hamilton Corporation) in 1917, as secretary and treasurer. In 1920 he

was elected vice-president and treasurer, and, in 1944, senior vice-president. He also was a director of Lima-Hamilton since 1918 and has been president and a director of the Superior Coach Corporation for the last five years.

Albert W. Faulconbridge, whose election as vice-president of the **Ajax-Consolidated Company**, with headquarters at Chicago, was reported in the *Railway Age* of January 3, served his apprenticeship as a carbuilder with the Canadian Pacific. Mr. Faulconbridge was also associated with the Canadian National, and during World War II he was production man-



Albert W. Faulconbridge

ager of Canadair, Ltd., at Montreal, Que., producer of military aircraft. He was later production manager and manager of the Railroad Division of the Haskellite Manufacturing Corporation, at Grand Rapids, Mich., which position he resigned to join Ajax-Consolidated.

The **Hanchett Manufacturing Company**, Big Rapids, Mich., has announced the appointment of **Alvin Haas** as vice-president and general manager. Mr. Haas was formerly president and general manager of Yates-American at Beloit, Wisc., for 17 years.

The **Consolidated Equipment Company**, Montreal, Que., Canada, has announced the appointment of **J. Kenneth Maclean** as vice-president.

F. K. McCune has been appointed assistant to the general manager of the apparatus department of the **General Electric Company**. Mr. McCune joined the company in 1928 and has been a member of the apparatus design engineering staff since 1946.

A. C. Kuss, Jr., has been elected executive vice-president of the **Art Rattan Works, Inc.**, of Mansfield, Ohio, with headquarters at the Eastern plant, Toppton, Pa. The appointment of **Clarence E. Preble** as sales manager, with headquarters at Mansfield, also was announced.

Bruce W. Grosvenor, formerly sales manager of the general line division of **Bowser, Inc.**, has been appointed district manager of the sales and service office at Albany, N. Y., to succeed **I. D. Bone**, who has resigned after 27 years of service with the company.

Raymond B. Johnson has been appointed Philadelphia district sales manager for the **Champion Rivet Company**, to succeed **W. H. S. Bateman**, retired. The company also has announced that the Philadelphia, Pa. office will now be a direct sales branch office.

Harry O. Bercher, general manager of the **International Harvester Company's Steel Division**, with headquarters at Chicago, has been appointed also director of purchasing and traffic, succeeding to the duties of **John Morrow, Jr.**, who has retired as vice-president of purchasing and traffic, after more than 45 years of service with the company.

The **Chain Belt Company**, at Milwaukee, Wis., has announced the election of **B. F. Devine**, **L. B. McKnight** and **O. W. Carpenter** as vice-presidents.

Eugene G. Sheasby has been appointed manager of the market development division of the **United States Steel Supply Company**, with headquarters at Chicago.

Joseph J. Hite, office engineer of the **American Hoist & Derrick Co.**, has been promoted to assistant chief engineer. He joined the company in 1936 and



Joseph J. Hite

worked as development engineer and office engineer respectively. Mr. Hite is a member of the American Society of Mechanical Engineers.

The **Vapor Car Heating Company, Inc.**, with headquarters at Chicago, has changed its name to the **Vapor Heating Corporation**.

OBITUARY

Frederick P. Huston, engineer and metallurgist in the development and research division of the **International Nickel Company**, at New York, died in Plainfield, N. J., on December 29,

1947. He was 57 years old. Mr. Huston was born at Sweet Springs, Mo., and was graduated from the University of Missouri in 1912 with a degree of B. S. in electrical engineering. He joined the technical service section of Inter-



Frederick P. Huston

national Nickel in October, 1927. Previous to his appointment as head of the division's railroad developments in February, 1945, he was associated with the INCO mill products division for about five years. Mr. Huston was a member of the American Welding Society, the American Society of Mechanical Engineers, the Master Boiler Makers Association, the American Railway Engineering Association, the New York Railroad Club, the Railroad Machinery Club of New York, the Railway & Locomotive Historical Society, the Railway Supply Manufacturers' Association and the Western Railway Club.

Robert E. Thomas, eastern sales representative for the brake shoe and castings division of the **American Brake Shoe Company**, died on December 16, 1947, after a prolonged illness. Mr.



Robert E. Thomas

Thomas was born in Troy, N. Y., on October 12, 1895. He started his business career with the **International Railway Company**, Buffalo, N. Y., and after serving as an engineer for the Colum-

bia Machinery Company, he joined American Brake Shoe as a salesman in June, 1926.

James McHenry Hopkins, chairman of the board of directors of the Camel Sales Company, a subsidiary of the Youngstown Steel Door Company, at Chicago, whose death was reported in the *Railway Age* of January 10, was born on July 24, 1866, at Xenia, Ohio. Mr. Hopkins began his career with the Barney & Smith Car Co., in Dayton, Ohio, in 1885, and in 1897 he went to Chicago to found the National Railway Specialty Company, now the Camel Sales Company. He became president of the firm in 1908, and subsequently became chairman of its board of directors, which position he held at the time of his death.

EQUIPMENT AND SUPPLIES

LOCOMOTIVES

The Missouri-Kansas-Texas has ordered 44 Diesel-electric freight locomotive units as follows: 16 A units and 4 B units from the Electro-Motive Division of the General Motors Corporation; 16 A units from the American Locomotive Company; and 8 A units from the Baldwin Locomotive Works. It is expected that all the units, the total estimated cost of which is \$7,000,000, will be delivered early next year. The new units will be used to make up 4 4,500-hp. A-B-A and 16 3,000-hp. A-A locomotives.

FREIGHT CARS

December Freight Car Output Totaled 9,823

Freight cars produced in December for domestic use totaled 9,823, including 2,162 built in railroad company shops, compared with November production of 8,938, including 2,049 constructed in railroad company shops, the American Railway Car Institute has announced. Freight cars ordered in December for domestic use amounted to 4,218, including 1,250 ordered from railroad company shops, compared with November orders for 8,169, which included 1,200 ordered from railroad company shops. The backlog of freight cars on order and undelivered on January 1 was 119,786, including 30,414 on order from railroad company shops.

No passenger-train cars were ordered in December, the institute said, but 85 cars were built and delivered, including 14 constructed in railroad company shops. The backlog of undelivered passenger-train cars on January 1 amounted to 2,260, including 90 on order from railroad company shops.

SIGNALING

The Chile Exploration Company, of Chile, South America, has ordered materials from the General Railway Signal Company for the installation of all-electric car retarders at Chicquamata, Chile. This installation will comprise a control tower, four classification tracks, four power switches, two power skates, and two Type-B retarders, totaling 154 rail feet of retardation.

ABANDONMENTS

Atlantic & Carolina.—This road has applied to the Interstate Commerce Commission for authority to abandon a 9.5-mile line from Warsaw, N. C., to Kenansville.

Delaware, Lackawanna & Western.—This company has applied to the Interstate Commerce Commission for authority to abandon that portion of its so-called Boonton line known as the "Rockaway Loop," extending approximately 3.1 miles from a point in Denville township, N. J., to a point in Randolph township. The road advised the commission that the present traffic on the loop "can and will be adequately served" from its stations at Dover and Denville.

Illinois Central.—This company has applied to the Interstate Commerce Commission for authority to abandon that portion of its line from Belleville, Ill., to Stookey, approximately 3.2 miles.

Louisville & Nashville.—Division 4 of the Interstate Commerce Commission has authorized this road to abandon its Fincastle branch, extending from Maloney, Ky., to Fincastle, 6.1 miles.

Mobile & Gulf.—This road has applied to the Interstate Commerce Commission for authority to abandon that portion of its line between Fayette, Ala., and Brownville, 23 miles.

Reading.—This road has applied to the Interstate Commerce Commission for authority to abandon a portion of a branch extending 1.8 miles from a point near Trexlertown, Pa., to Breinigsville.

Reading.—This road has applied to the Interstate Commerce Commission for authority to abandon two portions of its Catasauqua & Fogelsville line in the vicinity of Lock Ridge, Pa. One segment is 0.4 mile, the other is approximately 4 miles in length.

Rapid City, Black Hills & Western.—Division 4 of the Interstate Commerce Commission has authorized this road to abandon its entire line, extending approximately 32.2 miles from Rapid City, S. D., to a connection with the Chicago, Burlington & Quincy, and to abandon operations over the latter from the point of connection to Mystic, ap-

proximately 1.3 miles. The abandonment was approved subject to the condition that the applicant's properties, or any portion thereof, be sold to any responsible person, firm or corporation offering within 40 days of the date of the abandonment certificate (December 29, 1947) to purchase same for continued operation and willing to pay not less than the net salvage value, estimated by the applicant at \$278,234. The present condition of the applicant's line limits the speed of trains to 10 m.p.h.

St. Louis-San Francisco.—Acting on the request of the applicant, Division 4 of the Interstate Commerce Commission has dismissed this road's application for authority to abandon that portion of its line extending from a point near Mount Vernon, Mo., to Miller, approximately 8 miles.

Southern Pacific.—This road has applied to the Interstate Commerce Commission for authority to abandon that portion of its Wendling branch between Hyland, Ore., and Wendling, 2.5 miles.

Texas & New Orleans.—This road and the city of Dallas, Tex., have asked the Interstate Commerce Commission to approve a 1941 agreement under which the railroad would be permitted to abandon 10,540 ft. of track in that city and acquire and operate a substitute line, also in Dallas, of approximately 1.3 miles. Abandonment of the present line will enable the city to construct a boulevard. The substitute line, together with all necessary appurtenances, would be constructed by the city. Consummation of the 1941 agreement, according to the parties, was delayed because of World War II.

CAR SERVICE

Car-Movement Order Vacated

Voluntary railroad agreements "to effect further improvement in car handling" have resulted in cancellation by the Interstate Commerce Commission of Service Order No. 778 which was designed to prescribe railroad operating regulations for car movement. It was stated at the commission that virtually all roads had signed and filed satisfactory agreements.

As noted in the *Railway Age* of December 27, 1947, page 62, where details of the proposed agreement were set out, the voluntary arrangements were developed on the basis of an understanding that, if they were accepted by virtually all roads, the order would not be made effective. Thus the cancellation came in Service Order 778-D, effective January 13. Originally issued with a November 1 effective date, the order was thereafter postponed three times, the last named effective date having been January 15. It would have made each railroad and its operating officers responsible for car service, and fixed a general 48-hour

limit on stops of freight cars for loading, unloading or repairs (see *Railway Age* of October 18, 1947, page 80).

I. C. C. Service Order No. 798, which makes loaded private tank cars on private tracks subject to demurrage rules, has been further modified by additional amendments which exempt tank cars stencilled or sign-boarded to the effect that they are not air-tight or liquid-tight, and tank cars loaded with white or yellow phosphorus.

I. C. C. Service Order No. 775, which maintains super-demurrage charges on all types of freight cars, has been modified by Amendment No. 4, which clarifies the exemption provisions relating to export and import freight.

FINANCIAL

Chesapeake & Ohio.—N. Y. C. Stock and Directorships.—The Interstate Commerce Commission has set February 27 as the date of oral argument in the proceeding wherein this road is seeking to release its holdings of New York Central stock from trusteeship and in the other proceedings wherein Robert R. Young and Robert J. Bowman, chairman and president, respectively, of the C. & O., are seeking authority to serve as N. Y. C. directors. The argument will be held before the entire commission at its Washington, D. C., offices. As reported in *Railway Age* of December 13, 1947, page 64, C. E. Boles, assistant director of the commission's Bureau of Finance, recommended commission denial of the applications.

Delaware, Lackawanna & Western. — Equipment Trust Certificates.—This road has sold, subject to approval by the Interstate Commerce Commission, \$1,600,000 of series G equipment trust certificates to Halsey, Stuart & Co. on a bid of 99.6647 for 23¼ per cent obligations. The sale price represents an interest cost of approximately 2.81386 per cent. As reported in *Railway Age* of January 10, page 56, proceeds of the sale will be applied to the purchase of 500 50-ton steel-sheathed box cars, at an estimated unit cost of \$4,307, from the American Car & Foundry Co.

Delaware, Lackawanna & Western.—Acquired Nickel Plate Stock.—This road has acquired a substantial interest in the common stock of the New York, Chicago & St. Louis, according to an announcement by William White, D. L. & W. president. Mr. White said there has always been a close traffic relationship between the two companies and that each has much to offer the other in working together and effecting operating economy. These factors, together with the fact that a Lackawanna and Nickel Plate merger has always been looked upon as a "natural," with substantial advantages to both roads and

to the public, made it seem to the management of the Lackawanna desirable to secure a substantial position in Nickel Plate—looking in the first instance to steps short of merger that would be beneficial to both roads and, finally, to eventual merger.

International-Great Northern. — Equipment Trust Certificates.—Acting upon a request of the applicant, Division 4 of the Interstate Commerce Commission has dismissed this road's application in the Finance Docket No. 15941 proceeding, wherein it sought authority to assume liability for \$2,496,000 of series AA equipment trust certificates. Proceeds from the sale of the certificates were to have been applied toward the purchase of four Diesel-electric locomotives and certain passenger equipment, as outlined in *Railway Age* of December 20, 1947, page 71. The applicant advised the commission that it rejected the only bid received for the certificates, that of Halsey, Stuart & Co., the offer of which, it said, would have made the yield approximately 2.71 per cent.

Missouri Pacific. — Equipment Trust Certificates.—Acting upon a request of the applicant, Division 4 of the Interstate Commerce Commission has dismissed this road's application in the Finance Docket No. 15940 proceeding, wherein it sought authority to assume liability for \$5,248,000 of Series JJ equipment trust certificates. Proceeds from the sale of the certificates were to have been applied toward the purchase of 13 Diesel-electric locomotives, 200 hopper cars and certain passenger equipment, as outlined in *Railway Age* of December 20, 1947, page 71. The applicant advised the commission that it had rejected the "best bid" received for the certificates. The bid, submitted by Salomon Brothers & Hutzler, would have made the yield approximately 2.56 per cent annually, the M. P. said.

Missouri Pacific. — Reorganization.—The Interstate Commerce Commission has permitted the state of Texas, the Railroad Commission of Texas and the Continental Bank & Trust Company of New York to intervene in this road's reorganization proceedings, which, as noted in *Railway Age* of October 18, 1947, page 78, have been reopened for further hearing. The hearing is scheduled to be held at the commission's Washington, D. C., offices on January 27.

The Texas intervenors object to any proposal which would entail the dissolution of the International-Great Northern, a subsidiary debtor, and the removal of that road's offices, shops and roundhouses from their present locations in that state. Retention of the corporate organization of that road and 11 other subsidiary debtors under the laws of Texas also is sought. If the plan contemplates discontinuing the corporate organization of the I.-G. N. under Texas statutes, they said, the assets of

that road should be taken over by a separate company organized under the laws of that state.

The bank, as successor corporate trustee under a 1917 general mortgage, seeks to protect the interests of holders of \$1,200,000 of M. P. general mortgage 4 per cent gold bonds, due in 1975.

New York Central. — Acquisition.—R. E. Dougherty, vice-president-assistant to the president, New York Central, has been elected president of the Niagara Junction to succeed William J. Collins, vice-president of the Niagara Falls Power Company, which on January 9 sold the Niagara Junction to the Central, the Lehigh Valley and the Erie. (See the *Railway Age* of December 20, 1947, page 1088.) Fifty per cent of the stock was acquired by the Central and 25 per cent by each of the other two purchasers. The Niagara Junction will continue to be operated under the supervision of Harold F. Neville, the road's general superintendent. The 12 new directors are: Representing the New York Central—M. J. Alger, vice-president, traffic; F. A. Dawson, vice-president, lines Buffalo and east; Mr. Dougherty; F. J. Jerome, vice-president, operations and maintenance; H. H. McLean, assistant general counsel; and W. F. Place, vice-president, finance. Representing the Erie—H. D. Barber, vice-president; W. T. Pierson, general counsel; and W. S. Sporleder, superintendent, Buffalo Creek Railroad. Representing the Lehigh Valley—H. R. German, vice-president; C. L. Patterson, general manager; and T. O. Broker, assistant general counsel. The new board has elected Messrs. Dougherty, Jerome, Barber and Patterson as members of the Niagara Junction's executive committee.

Northern Pacific-Union Pacific.—Track-age Rights.—The Interstate Commerce Commission has permitted the Chicago, Milwaukee, St. Paul & Pacific to intervene in opposition to the application of these companies in the Finance Docket No. 15925 proceeding, wherein commission approval is sought of the arrangements whereby the applicants would serve the so-called Hanford, Wash., project of the federal government's Atomic Energy Commission. The application was outlined in detail in *Railway Age* of December 6, 1947, page 77.

Piedmont & Northern.—Increased Dividends.—This road has declared a dividend 75 cents a share and an extra extra of \$2 a share on the common stock, both payable on January 20 to stockholders of record on January 5. The previous payment was 50 cents a share on October 20, 1947, and the last extra was \$1 a share on January 20, 1947.

Richmond, Fredericksburg & Potomac.—Dividends.—This road, on December 29, 1947, paid extra dividends of \$4 a share on the voting common stock

and the dividend obligations. On the same date, participating dividends of \$3 and \$4 a share were paid, respectively, on the 7 per cent guaranteed and the 6 per cent guaranteed stocks.

St. Louis-San Francisco. — Equipment Trust Certificates.—This road has applied to the Interstate Commerce Commission for authority to assume liability for \$8,840,000 of series A equipment trust certificates, the proceeds of which will be applied to the purchase of the following equipment:

Description and Builder	Estimated Unit Price
10 1,000-hp. Diesel-electric switching locomotives (Electro-Motive Division, General Motors Corporation)	\$ 94,850
8 6,000-hp. Diesel-electric freight locomotives (E.M.D., G.M.C.)	569,698
5 1,000-hp. Diesel-electric switching locomotives (Fairbanks, Morse & Co.)	94,882
2 1,000-hp. Diesel-electric switching locomotives (American Locomotive Co.)	94,850
2 4,500-hp. Diesel-electric freight locomotives (A.L.C.)	432,600
1 1,000-hp. Diesel-electric switching locomotive (Baldwin Locomotive Works)	94,850
160 70-ton covered hopper cars (Pressed Steel Car Company)	5,170
300 50-ton box cars (Pullman-Standard Car Manufacturing Company)	4,310
500 55-ton open top hopper cars (Pullman-Standard)	3,602

The certificates, to be sold on the basis of competitive bidding, would be dated January 15 and would mature in 10 annual installments of \$884,000, starting January 15, 1949.

Union Pacific. — Stock Split. — Division 4 of the Interstate Commerce Commission has authorized this road to issue, subject to approval by its stockholders, 1,990,862 shares of preferred stock and 4,445,820 shares of common stock, par value \$50 per share, in lieu of 995,431 shares of preferred stock and 2,222,910 shares of common stock, par value \$100 per share, now outstanding. As noted in *Railway Age* of December 20, 1947, page 72, the two-for-one stock split, to become effective July 1, is expected to broaden the market and increase the number of stockholders. The stock split has been approved by the applicant's board of directors and will be voted upon at a stockholder's meeting on May 11. The preferred stock will be entitled to dividends of not exceeding 4 per cent yearly.

Dividends Declared

Cleveland, Cincinnati, Chicago & St. Louis. —common, \$5.00, semi-annually; 5% preferred, \$1.25, quarterly, both payable January 31 to holders of record January 16.
Massachusetts Valley. —\$3.00, semi-annually, payable February 1 to holders of record December 31.

Average Prices Stocks and Bonds

	Jan. 13	Last week	Last year
Average price of 20 representative railway stocks	49.06	47.72	48.91
Average price of 20 representative railway bonds	86.33	85.14	91.06

CONSTRUCTION

Chesapeake & Ohio. — Over the protest of the Norfolk & Western, Division 4 of the Interstate Commerce Commission has authorized this road to construct a \$2,546,000 extension to its Trace Fork Sub-Division from a point near Holden, W. Va., to a point on the right fork of Trace Fork of Pigeon Creek, approximately 5.9 miles. The purpose of the extension, which includes a 2,650-ft. tunnel, is to serve a new tippie of the Island Creek Coal Company. It is estimated the tippie will produce 1,200,000 tons of coal annually.

The division's report in the proceeding (Finance Docket No. 15665) made findings, among others, that certain of the markets for the coal can be reached or served to the best advantage only by the C. & O.; and that the prospective revenues to be received by the C. & O. will be sufficient to support the cost of construction and operation and will afford an ample return upon the investment.

The N. & W. opposition was based on contentions that the extension will invade territory directly tributary to it. Estimating that it could construct a 6.9-mile extension from a point on its Lenore branch to the mine for \$953,000, the N. & W. said that it failed to file an application for authority to do so because, in its opinion, the line would be a spur track serving a single shipper in territory exclusively tributary to it. As to this, the division stated that construction of a line to serve the new tippie by either the N. & W. or C. & O. would require a certificate.

The commission also observed that the N. & W. has not been requested to furnish service, and has no assurance that its services will be acceptable to the coal company. Moreover, the commission found that, inasmuch as the coal from the new tippie would supplant a similar tonnage from an existing tippie on the C. & O., no change in the distribution of cars would be involved if that carrier's service be continued. On the other hand, it noted that it would be necessary for the N. & W. to create a new car allocation, adding that the same road already is confronted with the task of providing additional equipment for more than 2,000,000 tons of coal annually from the new mines being developed on its Lenore branch. The latter finding was characterized as being of "particular importance," in that "an acute car shortage of national proportions exists at the present time and probably will not be alleviated in full for some time."

With respect to the position of the shipper, the commission's report noted that the coal company asserted that it would "exhaust every resource possible" to secure the service of the C. & O.; and if it should fail in this respect it would have to "give the matter further consideration" before determining

whether the service of the N. & W. "would be accepted at all." The coal company or its predecessor has been using the C. & O. since 1904, and stated that its relationships with that road have been "highly profitable."

New Orleans Railroads.—The Interstate Commerce Commission has permitted the Railway Labor Executives' Association to intervene in opposition to the application wherein railroads serving New Orleans, La., have joined with that city in asking commission approval of the acquisitions, abandonments and financing that will be involved in carrying out the agreement recently entered for the construction of a union passenger terminal there.

Southeastern. — The Interstate Commerce Commission cancelled the hearings scheduled for January 6 on this company's application for authority to construct a new line between Savannah, Ga., and Atlanta, approximately 229 miles. As noted in *Railway Age* of December 13, 1947, page 78, the hearing was to have been held before Examiner Lyle at the Atlanta-Biltmore Hotel, Atlanta. Details of the proposed line were outlined in *Railway Age* of September 13, 1947, page 94, and previous issues.

St. Louis-San Francisco. — This road has awarded a contract to the R. J. Reid Contracting Company of Birmingham, Ala., for the construction of concrete pits and foundations for a new Diesel locomotive repair shop at Springfield, Mo. The contract also covers the building of a concrete scale pit and concrete box and pipe drainage system, all of which are part of the new yard and mechanical facilities being installed at Springfield. This work will cost approximately \$150,000.

RAILWAY OFFICERS

EXECUTIVE

E. A. West, vice-president and general manager of the Denver & Rio Grande Western, at Denver, Colo., has been elected executive vice-president. **W. C. Jones**, assistant to the general manager, has been appointed to the newly created position of assistant to executive vice-president.

R. L. Barber, special assistant to the vice-president of the New York Central, with headquarters at Chicago, has been appointed executive assistant to the vice-president, with the same headquarters. He succeeds **M. C. Blizard**, who has retired after 49 years of railroad service.

Samuel C. Pace, whose appointment as assistant to the president, in charge of public relations, of the St. Louis-San Francisco, with headquarters at St. Louis, Mo., was reported in *Railway Age* of December 13, 1947, is a native of

Texas and a graduate of the Pulitzer School of Journalism at Columbia University. Mr. Pace served as a reporter on the New York World and the New York Herald-Tribune, and in the advertising and sales departments of the Strathmore Paper Company at West



Samuel C. Pace

Springfield, Mass. During World War II, he was public relations officer for the Chicago Ordnance District and for the Detroit (Mich.) office of the Chief of Ordnance, with the rank of major. He was regional director of public relations for the American Airlines at Dallas, Tex., prior to joining the Frisco in his present position.

Harvey E. Shumway, whose promotion to assistant to the president of the Union Pacific, at Omaha, Neb., was reported in the *Railway Age* of December 27, was born at Atchison, Kans., on June 14, 1898, and entered railway service on July 1, 1917, as a clerk of the U. P., at North Platte, Neb. He subsequently served in various capacities until September 1, 1930, when he was

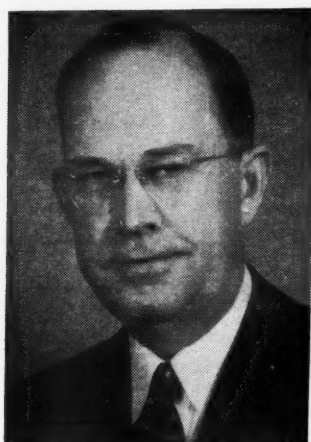


Harvey E. Shumway

advanced to trainmaster, with headquarters at North Platte, and in April, 1937, he was promoted to assistant division superintendent at Omaha. On September 15, 1941, Mr. Shumway was advanced to division superintendent at Denver, Colo., and two years later he was trans-

ferred to Omaha. In April, 1945, he was promoted to general superintendent of the Kansas-Colorado divisions, with headquarters at Kansas City, Mo., and in September of that year became general superintendent of transportation at Omaha. Mr. Shumway was serving in the latter capacity at the time of his recent appointment.

Ernest T. Williams, assistant to vice-president of the Railway Express Agency at Atlanta, Ga., has been appointed executive assistant to the president at New York, succeeding **J. R. Marra**, whose appointment as general manager of the Eastern Lakes department at Cleveland,



Ernest T. Williams

Ohio, was reported in the *Railway Age* of December 20. Mr. Williams was born at Charlotte, N. C., and served as superintendent of the Pamlico division at Norfolk, Va., and as superintendent of the Blue Ridge division at Roanoke, Va., before becoming assistant to vice-president at Atlanta in October, 1947.

In addition to the newly elected officers of the reorganized Chicago, Rock Island & Pacific, the names of which were reported in the *Railway Age* of January 10, page 38, the following have been appointed to executive posts by the railroad: **L. B. Pritchett**, assistant to chief executive officer at Chicago, to the position of assistant to president, and **William E. Hayes**, executive representative at Washington, D. C., to assistant to president at that point.

FINANCIAL, LEGAL and ACCOUNTING

H. P. Holt has been appointed acting general auditor of the Minneapolis, St. Paul & Sault Ste. Marie at Minneapolis, Minn., relieving **J. E. Bertelsen**, who has been granted a leave of absence.

F. W. Root, solicitor of the Chicago, Milwaukee, St. Paul & Pacific for the state of Minnesota, has retired after 65 years of association with the road. **Stuart Rider**, a practicing attorney at Minneapolis, Minn., has been appointed assistant solicitor for Minnesota.

William H. Shipley has been appointed an attorney of the Chicago & North Western, at Chicago.

C. A. Zehnder, assistant controller of the Denver & Rio Grande Western, at Denver, Colo., has been elected controller, succeeding **W. R. Blackwood**, who has resigned to accept an executive position in Miami, Fla.

Albert Weiberg has been appointed assistant to the general auditor of the Chicago, Rock Island & Pacific, with headquarters at Chicago.

H. L. Lehmkuhle, whose appointment as comptroller of the New York, Chicago & St. Louis at Cleveland, Ohio, was reported in *Railway Age* of November 29, 1947, was born on December 16, 1884, at Ottawa, Ohio. Mr. Lehmkuhle attended Ottawa high school and two years of business college, entering railroad service on March 1, 1904, as a clerk with the N. Y. C. & St. L. In August of the following year he went to Cleveland where he served as clerk and stenographer until September, 1912. On the



H. L. Lehmkuhle

latter date he went with the Atlas Car & Manufacturing Co., returning to the Nickel Plate in April, 1914, as clerk and stenographer. From April, 1918, to March, 1937, Mr. Lehmkuhle served as general bookkeeper and general accountant in the auditor's office at Cleveland, being appointed assistant auditor on the latter date. He was promoted to auditor in May, 1939, and to general auditor in April, 1942. He became assistant comptroller in April, 1943, which position he held until his recent promotion to comptroller.

C. E. Bahl has been appointed assistant secretary of the New York, Chicago & St. Louis, with headquarters at Cleveland, Ohio.

Frank H. Cole, Jr., has been appointed assistant general counsel of the Baltimore & Ohio, with headquarters at Cincinnati, Ohio. Mr. Cole has been connected with the legal department of the B. & O. at Cincinnati since March, 1918, when he entered the department as a clerk. He became attorney in

July, 1916, and served in various legal capacities for the company since that time.

Robert C. Beguelin, attorney of the Chicago & North Western at Chicago, has been appointed assistant secretary, succeeding **H. H. Small**, whose retirement was reported in the *Railway Age* of January 10.

OPERATING

N. L. Waterman, superintendent of freight terminals of the Chicago & North Western, at Chicago, has been appointed superintendent of the road's Wisconsin division, with headquarters at Chicago, succeeding **Henry A. Parish**, who has retired after a railroad career of 50 years.

William T. Cummins, assistant superintendent of the Louisville & Nashville, with headquarters at Middlesboro, Ky., has been promoted to superintendent at that point, succeeding **Arthur B. Gloster**, who has retired after 48 years of service with the railroad. Mr. Cummins is succeeded by **Wesley R. Winkler**, assistant superintendent at Ravenna, Ky., who in turn is succeeded by **William C. McGowan**, terminal trainmaster at New Orleans, La. Mr. McGowan is succeeded by **John W. Lovell**.

A. E. Perlman, chief engineer of the Denver & Rio Grande Western, with headquarters at Denver, Colo., has been appointed general manager, succeeding to the duties of **E. A. West**, formerly vice-president and general manager, who has been elected executive vice-president.

A. E. Buckingham has been appointed superintendent of the St. Joseph Terminal, with headquarters at St. Joseph, Mo., succeeding **C. H. Drew**, who has retired after 47 years of service with the company.

Justin E. Garvin, mail and express traffic agent of the New York Central, with headquarters at Indianapolis, Ind., has succeeded to the duties of **C. E. Hendrix**, assistant manager of mail and express traffic, at Indianapolis, who has retired.

W. E. M. Neal, superintendent of the Southern's Knoxville and Augusta Division, at Knoxville, Tenn., has retired, after more than 50 years of service with the road. The K. & A. Division has been consolidated with the railroad's Knoxville division.

The Denver & Rio Grande Western has announced the following changes affecting trainmasters: **L. P. Urquhart**, assistant trainmaster at Salt Lake City, Utah, promoted to trainmaster at Alamosa, Colo., succeeding **C. E. McEnany**, transferred to Burnham, Colo.; **F. A. Jarvis**, assistant trainmaster at Provo, Utah, promoted to trainmaster there; **O. R. Lundborg** appointed trainmaster at Salida, Colo., succeeding **T. J. Peters**, transferred to Glenwood Springs, Colo.;

E. L. Oliver, trainmaster at Glenwood Springs, transferred to Sunnyside, Utah, succeeding **H. Brooks**, appointed trainmaster for the area from Green River, Utah, to Grand Junction, Colo., and for the Grand Junction terminal.

J. Ralph Legg, supervisor of stations and transfers of the Southern, at Chattanooga, Tenn., has been promoted to the newly-created position of superintendent of merchandise service, with headquarters remaining at Chattanooga. **Lee M. Davis**, supervisor of stations and transfers, has been promoted to superintendent of stations and transfers, at Chattanooga.

Thomas J. Seale, superintendent of the New Orleans, La., division of the Railway Express Agency, has been appointed superintendent of organization of the Southern departments, with headquarters at Atlanta, Ga. **Joseph P. Johnson**, superintendent of the Pamlico division at Norfolk, Va., has been appointed superintendent of organization, Southern departments, at Atlanta, Ga., and will be the Southern departments' representative on the Standard Practices Committee of the agency.

H. C. Brede, engine foreman of the Missouri Pacific, with headquarters at Palestine, Tex., has been appointed trainmaster at the Houston (Tex.) terminal.

A. O. Thor, assistant superintendent of the Chicago, Milwaukee, St. Paul & Pacific's Idaho division at Spokane, Wash., has been appointed superintendent of the Coast division, with headquarters at Tacoma, Wash., succeeding **Lawrence Wylie**, who has been appointed electrical engineer at Seattle, Wash.

The St. Louis-San Francisco has announced the following appointments effective on January 18, at which time the road's operating divisions will be divided into two districts (for details, see news columns in this issue): **R. J. Stone**, division superintendent at Springfield, Mo., to be assistant general manager of the Western district, with headquarters as before at Springfield; **S. J. Frazier**, assistant general manager at Springfield, to direct the Eastern district, with the same headquarters; **E. O. Daughtrey**, assistant division superintendent at Oklahoma City, Okla., to superintend at Fort Smith, Ark., succeeding **E. P. Olson**, transferred to Springfield to replace Mr. Stone; **Howard W. Hale**, superintendent of transportation to general superintendent of transportation, with headquarters as before at Springfield; **V. B. Gleaves**, assistant superintendent of transportation, to assistant general superintendent of transportation at Springfield; and **L. R. Hoff** to assistant to general superintendent of transportation.

TRAFFIC

Fred N. Hicks, whose retirement as passenger traffic manager of the Chicago, Milwaukee, St. Paul & Pacific, at

Chicago, was reported in *Railway Age* of December 6, 1947, was born on March 15, 1881, at Chicago, and began his railroad career with the Lake Erie & Western (now New York, Chicago & St. Louis) at Indianapolis, Ind., in 1898. Mr. Hicks was employed in the traffic department of the Chicago, Indianapolis



Fred N. Hicks

& Louisville from 1900 to 1904, and in the latter year joined the Milwaukee Road as traveling freight and passenger agent at Philadelphia, Pa. He later served, successively, as traveling passenger agent at Indianapolis, city passenger agent at Chicago and New England freight and passenger agent at Boston, Mass. Following two years in which he was out of railway service, Mr. Hicks became general agent of the Milwaukee in 1920 and was transferred to Milwaukee, Wis., in 1922. From 1924 to 1938, he was assistant traffic manager, Western Lines, at Seattle, Wash., becoming passenger traffic manager at Chicago on May 1, 1938.

Edward M. Roscoe, commercial agent of the Southern, has been appointed district freight agent, with headquarters as before at Valdosta, Ga.

Haydn E. Goodley has been appointed division freight and passenger agent of the Chicago Great Western, with headquarters at Sycamore, Ill.

W. D. Hinkle, acting division freight traffic manager of the Gulf, Mobile & Ohio, with headquarters at Montgomery, Ala., has been appointed assistant general freight agent, with headquarters at New Orleans, La. **H. W. Bell**, assistant general freight agent with headquarters at Kansas City, Mo., has been transferred to Denver, Colo.

John Hooks has been appointed assistant general freight agent of the Chicago, Rock Island & Pacific, at Chicago, succeeding **Hays M. Heimbaugh**, whose resignation to become a member of the Central Freight Association, was reported in *Railway Age* of November 22.

F. D. Bunsen, assistant general freight agent of the Southern Pacific, at El

Paso, Tex., has been promoted to general freight agent at that point.

James W. Switzer, whose promotion to assistant to general passenger traffic manager of the New York Central, with headquarters at Chicago, was reported in *Railway Age* of December 6, 1947, was born on April 18, 1881, at Galesburg, Ill., and received his higher education at the University of Iowa. Mr. Switzer began his railroad career with the Chicago, Burlington & Quincy in 1901 as a telegraph operator, and subsequently served as ticket seller, city passenger agent and passenger rate clerk. He later became, successively, rate clerk of the Illinois Central and



James W. Switzer

chief rate clerk and chief clerk of the Michigan Central. He was advanced to assistant general passenger agent of the latter road in 1917, with headquarters at Detroit, Mich., and to general passenger agent at Chicago in 1925. He became general passenger agent of the N. Y. C. at New York, in 1932, advancing to passenger traffic manager at Chicago in 1940, which position he held at the time of his current promotion.

William Wallace, general passenger agent of the Chicago, Milwaukee, St. Paul & Pacific at Seattle, Wash., has been promoted to assistant passenger traffic manager, with headquarters at Chicago. He succeeds **Harry Sengstacken**, whose promotion to passenger traffic manager at Chicago was reported in the *Railway Age* of January 10. Mr. Wallace is succeeded at Seattle by **Oliver R. Anderson**, general agent, passenger department, at St. Paul, Minn.

Following the reorganization of the Chicago, Rock Island & Pacific on January 1, **A. D. Martin**, passenger traffic manager at Chicago, was reappointed to that position for the new company. **Ephraim Rigg**, assistant freight traffic officer, has been promoted to general freight traffic manager at Chicago.

Fred J. Wilson, general agent of the St. Louis-San Francisco at Springfield, Mo., has been appointed general agent at St. Louis, Mo., succeeding **James J.**

Cummins, who has retired after 38 years of service.

S. M. Farrell has been appointed assistant general passenger agent of the Great Northern, with headquarters at St. Paul, Minn., succeeding **W. A. Wilson**, who has resigned because of ill health. **R. C. Ramsey**, traveling freight agent at Spokane, Wash., has been appointed general agent at Bellingham, Wash., succeeding **C. N. Christopherson**, who has retired.

Walter W. Kremer, whose promotion to general traffic manager of the Minneapolis, St. Paul & Sault Ste. Marie, at Minneapolis, Minn., was reported in the *Railway Age* of January 3, was born on May 10, 1900, at Kalamazoo, Mich. Mr. Kremer entered railroad service in 1917 as a rate clerk with the Pennsylvania in his home town and joined the Minneapolis & St. Louis in



Walter W. Kremer

1924 as traveling freight agent, at Detroit, Mich. He held a similar position with the Canadian Pacific from 1929 to 1934, with headquarters at Grand Rapids, Mich., and was promoted to district freight representative at Detroit in the latter year. His next position was that of district freight agent for the C. P. at St. Louis, Mo., which he held from 1937 to 1940. Mr. Kremer became general freight agent at Detroit in January, 1941, and was transferred to Boston, Mass., in June of that year. In June, 1944, he joined the Boston & Maine as western traffic manager, with headquarters at Chicago. In October, 1944, he re-joined the C. P. as general freight agent at Chicago, which position he held at the time of his recent appointment.

Carl M. Owen has been appointed general agent of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Everett, Wash., succeeding **H. H. Tavenner**, who has retired after nearly 49 years of service with the road.

ENGINEERING and SIGNALING

Lawrence Wylie, superintendent of the Chicago, Milwaukee, St. Paul & Pa-

cific's Coast division at Tacoma, Wash., has been appointed electrical engineer, with headquarters at Seattle, Wash.

S. Thorvaldson has been appointed chief engineer of the Lake Superior & Ishpeming, succeeding **E. G. Day**, who has retired at his own request. Mr. Thorvaldson was terminal engineer of the Wabash at Detroit, Mich., and prior thereto for short periods of time was employed by the Pennsylvania and the Pere Marquette. Mr. Day, prior to his association with the L. S. & I., was division engineer of the Chicago & North Western at Escanaba, Mich.

K. L. Moriarty, assistant chief engineer of the Denver & Rio Grande Western, at Denver, Colo., has been promoted to chief engineer, succeeding **A. E. Perlman**, who has been appointed general manager.

F. R. Paisley, assistant chief engineer of the Pittsburgh & Lake Erie, with headquarters at Pittsburgh, Pa., has been promoted to chief engineer, with the same headquarters, to succeed **N. W. McCallum**, who has retired after 48½ years of service with the New York Central system, of which the P. & L. E. is a part. **W. T. Elmes**, research engineer, has been promoted to assistant chief engineer, to succeed Mr. Paisley, and **H. G. Pike** has been appointed research engineer to succeed Mr. Elmes.

MECHANICAL

Frank J. Jumper, general mechanical engineer of the Union Pacific at Omaha, Neb., has retired after 42 years of railroad service.

John L. Roach, whose retirement as superintendent of motive power of the Fort Worth & Denver City (part of the Burlington system), was reported in *Railway Age* of December 6, 1947, was born at Greencastle, Ind., on November 25, 1874; entered railroad service in 1899 as a roundhouse laborer on the Missouri Pacific at Kansas City, Kan.; served as machinist apprentice; and became a journeyman machinist in 1895. In 1900 he entered the service of the Atchison, Topeka & Santa Fe, working one year as a machinist, and the following three as shop foreman. After a year as machine foreman of the Denver & Rio Grande at Pueblo, Colo., Mr. Roach joined the Colorado & Southern (part of the Burlington system), at Denver, Colo., and served as a machinist and assistant roundhouse foreman until March, 1907, when he became shop foreman of the F. W. & D. C., at Childress. A year later he was promoted to general foreman and in 1910 he was advanced to master mechanic, with the same headquarters. Mr. Roach had been superintendent of motive power since June, 1947.

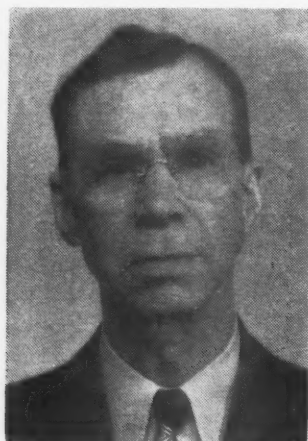
M. P. Nunnally, mechanical engineer of the St. Louis Southwestern, with headquarters at Pine Bluff, Ark., has

been promoted to assistant superintendent of motive power, succeeding **C. A. Nicholson**, who has retired. **S. J. Fuller**, assistant mechanical engineer, has been promoted to mechanical engineer, and **L. O. Bluerock**, draftsman, succeeds Mr. Fuller as assistant mechanical engineer. **Maurice Strawn**, wrecker foreman of the St. Louis Southwestern of Texas, with headquarters at Tyler, Tex., has been promoted to general car foreman, succeeding **L. C. Kirklin**, who has retired.

T. F. Jelnick has been appointed superintendent of automotive equipment of the Chicago, Burlington & Quincy, at Chicago, succeeding **E. F. Weber**, who has retired.

William D. Nelson, assistant superintendent of the South Louisville (Ky.), shops of the Louisville & Nashville, has been promoted to superintendent of shops there, succeeding **Ernest O. Rollings**, who has retired after 53 years of service. Mr. Nelson is succeeded by **James W. Adams**, assistant to the superintendent. **John F. Ryan** has been appointed assistant superintendent of machinery, with headquarters at Louisville, Ky., succeeding **T. O. Sechrist**, who has retired after 34 years of service with the company. **Charles N. Wiggins, Jr.** and **Carl A. Love** have been appointed general master mechanic and assistant general master mechanic, respectively, with headquarters at Louisville. **Louis E. Wallace** has been appointed general boiler inspector, at Louisville, succeeding **Mark Manley**, who has retired following a 51-yr. career with the road.

George S. Robertson, whose promotion to superintendent of motive power of the Fort Worth & Denver City (part of the Burlington Lines), at Childress, Tex., was reported in the *Railway Age* of December 6, was born in Scotland on April 20, 1887, and began his career as an apprentice ship fitter in yards at Dundee, Scotland. He came to the



George S. Robertson

United States in 1907, and was employed in the building and repairing of ships until 1910, when he joined the F. W. & D. C. as a boilermaker at Childress. He was promoted to

general boiler foreman in 1918 and to general foreman in 1939, which position he held at the time of his recent advancement.

PURCHASES and STORES

Following the reorganization of the Chicago, Rock Island & Pacific on January 1, **W. R. Owen**, purchasing agent at Chicago, was re-appointed to that position for the new company.

S. C. King, assistant to the auditor of disbursements of the Florida East Coast, has been appointed general storekeeper, with headquarters as before at St. Augustine, Fla., succeeding **Alfred R. Dale**, who retired from active duty on December 31, after 48 years of service. Born in Kansas City, Mo., on September 12, 1887, Mr. King began his railroad career in the supply department of the Missouri Pacific in 1909. He joined the Union Pacific in 1912 at Salt Lake City, Utah, as traveling material accountant and later became assistant auditor of disbursements. In 1918 he transferred to the stores department of the Union Pacific at Pocatello, Idaho,



S. C. King

serving as traveling storekeeper and chief clerk to the general storekeeper. At the close of World War I, he entered the service of the U. S. R. A. as inspector in the department of material and supplies. When this work was completed in 1923, he returned to the Union Pacific as division stores accountant at Los Angeles, Cal. Mr. King went with the Florida East Coast in September, 1927, as traveling material accountant and on August 1, 1943, was appointed assistant to the auditor of disbursements, which position he held until his recent appointment as general storekeeper of the system, effective January 1.

Mr. Dale was born at Cleveland, Ohio, on August 6, 1877, and entered railroad service in December, 1899 as commissary clerk with the Florida East Coast. Three months later he became stenographer in the mechanical department and in October, 1904, he was appointed a storekeeper in the newly-organized stores department. In 1915

Mr. Dale was promoted to general storekeeper of the system, which position he held until his retirement.

SPECIAL

C. C. Dille has been appointed advertising agent of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Chicago, succeeding **G. A. Semmlow**, who has resigned.

Edward J. Lamy, inspector of safety of the Louisville & Nashville, with headquarters at Louisville, Ky., has been appointed assistant to the superintendent of safety, with headquarters at Louisville, Ky., succeeding the late **Curtis Dille**.

Joseph H. Murray, assistant to the superintendent of the Prevention and Security department of the Railway Express Agency, has been appointed superintendent of that department, with headquarters at New York, succeeding **George M. Dallas**, retired.

OBITUARY

Robert Hunt, former general superintendent motive power of the Seaboard Air Line at Norfolk, Va., died in that city on November 26, 1947. Mr. Hunt was born at Manchester, England, on February 16, 1888, and studied mechanical engineering at Manchester Technical College. Entering railroad service in 1901 with the Great Central (now London Midland & Scottish) in England, he served until 1909 as apprentice draftsman. Mr. Hunt entered the service of the Atlantic Coast Line as draftsman at Wilmington, N. C., in 1909, becoming chief draftsman in 1913. He held the latter position until 1918, when he became mechanical engineer of the Seaboard Air Line at Norfolk. In 1930 he was appointed assistant general superintendent motive power of the S. A. L. at Norfolk and in 1944, he was promoted to general superintendent motive power. Mr. Hunt held the latter position until 1945 when he left railroad service to become designing and test engineer of the Berkley Machine Works & Foundry Co., holding the latter position at the time of his death.

Leon H. Doty, Eastern traffic manager of the Akron, Canton & Youngstown at New York, died on December 15, 1947. Mr. Doty was a member of the sales-service division of this road for over 24 years.

George P. Lyman, former assistant general freight agent of the Chicago, Burlington & Quincy, at St. Paul, Minn., who retired in 1933, died at Techny, Ill., on January 1.

R. E. McComas, general agent of the Chicago & Eastern Illinois at Tulsa, Okla., died on December 2.

J. G. Meehan, general agent of the Chicago & Eastern Illinois, at Jacksonville, Fla., died on December 12.

15 more for the C&O



THE Chesapeake and Ohio has just placed an order for 15 more 2-6-6-6 locomotives with Lima-Hamilton.

These locomotives are of the type that, on dynamometer tests, developed a drawbar pull of 117,500 lbs.—developed an instantaneous drawbar horsepower of 7498 at 46 mph and sustained drawbar horsepowers of 6700 to 6900 at speeds of 42 and 46 mph—accelerated 160 loaded cars (14,083 tons) from dead stop to 19 mph in one mile, and reached 29 mph in 11 minutes.

This is our fifth order from the Chesapeake and Ohio for a total of 60 Class H-8 locomotives—proof in itself of the capable job that they are doing.



LIMA, OHIO
Lima Locomotive Works Division
Lima Shovel and Crane Division

LIMA-HAMILTON CORPORATION

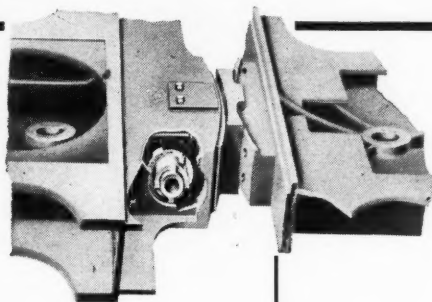
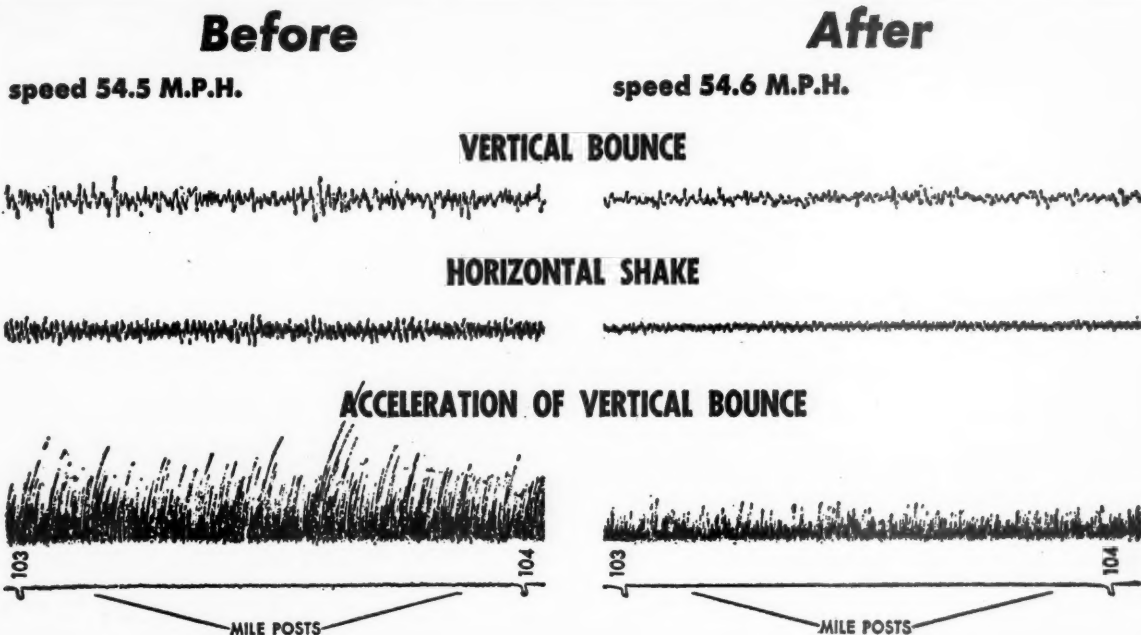
HAMILTON, OHIO
Hooven, Owens, Rentschler Co.
Niles Tool Works Co.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1947

Name of road	Av. mileage operated during period	Operating revenues				Operating expenses				Operating ratio	Net from railway operation	Net railway operating income	
		Freight	Passenger	Total (inc. misc.)	Way and structures	Maintenance of equipment	Traffic	Trans- portation	Total			1947	1946
Akron, Canton & Youngstown	Nov. 171	\$447,061	\$45	\$447,106	\$67,697	\$49,948	\$25,866	\$136,144	\$301,020	65.2	\$160,414	\$66,582	\$81,177
Nov. 171		\$456,227	992	\$457,219	\$72,811	\$47,922	\$25,866	\$136,144	\$301,020	67.3	\$160,414	\$66,582	\$81,177
Nov. 171		\$456,227	992	\$457,219	\$72,811	\$47,922	\$25,866	\$136,144	\$301,020	67.3	\$160,414	\$66,582	\$81,177
Atchison, Topeka & Santa Fe	Nov. 13,107	\$34,111,164	\$3,819,978	\$38,131,142	\$5,532,532	\$7,517,655	\$82,834	\$14,523,148	\$30,677,745	72.9	\$11,267,567	\$6,320,212	\$4,883,239
Nov. 13,107		\$34,111,164	\$3,819,978	\$38,131,142	\$5,532,532	\$7,517,655	\$82,834	\$14,523,148	\$30,677,745	72.9	\$11,267,567	\$6,320,212	\$4,883,239
Nov. 13,107		\$34,111,164	\$3,819,978	\$38,131,142	\$5,532,532	\$7,517,655	\$82,834	\$14,523,148	\$30,677,745	72.9	\$11,267,567	\$6,320,212	\$4,883,239
Atlanta & St. Andrews Bay	Nov. 82	\$142,724	\$2,160	\$144,884	\$10,351	\$19,303	\$15,171	\$41,674	\$80,887	53.7	\$69,760	\$27,062	\$34,008
Nov. 82		\$142,724	\$2,160	\$144,884	\$10,351	\$19,303	\$15,171	\$41,674	\$80,887	53.7	\$69,760	\$27,062	\$34,008
Nov. 82		\$142,724	\$2,160	\$144,884	\$10,351	\$19,303	\$15,171	\$41,674	\$80,887	53.7	\$69,760	\$27,062	\$34,008
Atlanta & West Point	Nov. 83	\$153,890	\$15,602	\$169,492	\$186,659	\$171,402	\$65,034	\$459,934	\$294,339	59.2	\$79,501	\$29,339	\$20,543
Nov. 83		\$153,890	\$15,602	\$169,492	\$186,659	\$171,402	\$65,034	\$459,934	\$294,339	59.2	\$79,501	\$29,339	\$20,543
Nov. 83		\$153,890	\$15,602	\$169,492	\$186,659	\$171,402	\$65,034	\$459,934	\$294,339	59.2	\$79,501	\$29,339	\$20,543
Western Ry. of Alabama	Nov. 133	\$308,735	\$34,672	\$343,407	\$43,665	\$55,144	\$13,579	\$159,499	\$290,955	77.2	\$85,966	\$48,354	\$40,000
Nov. 133		\$308,735	\$34,672	\$343,407	\$43,665	\$55,144	\$13,579	\$159,499	\$290,955	77.2	\$85,966	\$48,354	\$40,000
Nov. 133		\$308,735	\$34,672	\$343,407	\$43,665	\$55,144	\$13,579	\$159,499	\$290,955	77.2	\$85,966	\$48,354	\$40,000
Atlantic Coast Line	Nov. 5,573	\$7,920,562	\$1,406,365	\$9,326,927	\$1,870,630	\$2,810,279	\$296,123	\$4,473,682	\$8,919,367	87.9	\$1,224,909	\$700,000	\$375,439
Nov. 5,573		\$7,920,562	\$1,406,365	\$9,326,927	\$1,870,630	\$2,810,279	\$296,123	\$4,473,682	\$8,919,367	87.9	\$1,224,909	\$700,000	\$375,439
Nov. 5,573		\$7,920,562	\$1,406,365	\$9,326,927	\$1,870,630	\$2,810,279	\$296,123	\$4,473,682	\$8,919,367	87.9	\$1,224,909	\$700,000	\$375,439
Charleston & Western Carolina	Nov. 343	\$347,605	\$6,910	\$354,515	\$49,497	\$78,215	\$14,728	\$158,320	\$310,969	84.6	\$56,753	\$25,000	\$25,017
Nov. 343		\$347,605	\$6,910	\$354,515	\$49,497	\$78,215	\$14,728	\$158,320	\$310,969	84.6	\$56,753	\$25,000	\$25,017
Nov. 343		\$347,605	\$6,910	\$354,515	\$49,497	\$78,215	\$14,728	\$158,320	\$310,969	84.6	\$56,753	\$25,000	\$25,017
Baltimore & Ohio	Nov. 6,194	\$27,911,001	\$1,898,692	\$29,809,693	\$3,728,491	\$6,428,218	\$143,644	\$14,204,886	\$26,374,158	83.6	\$5,170,698	\$3,000,000	\$2,081,392
Nov. 6,194		\$27,911,001	\$1,898,692	\$29,809,693	\$3,728,491	\$6,428,218	\$143,644	\$14,204,886	\$26,374,158	83.6	\$5,170,698	\$3,000,000	\$2,081,392
Nov. 6,194		\$27,911,001	\$1,898,692	\$29,809,693	\$3,728,491	\$6,428,218	\$143,644	\$14,204,886	\$26,374,158	83.6	\$5,170,698	\$3,000,000	\$2,081,392
Staten Island Rapid Transit	Nov. 29	\$147,766	\$9,338	\$157,104	\$28,651	\$44,524	\$1,449	\$146,881	\$270,638	104.6	\$11,987	\$41,138	\$62,702
Nov. 29		\$147,766	\$9,338	\$157,104	\$28,651	\$44,524	\$1,449	\$146,881	\$270,638	104.6	\$11,987	\$41,138	\$62,702
Nov. 29		\$147,766	\$9,338	\$157,104	\$28,651	\$44,524	\$1,449	\$146,881	\$270,638	104.6	\$11,987	\$41,138	\$62,702
Bangor & Aroostook	Nov. 602	\$1,619,312	\$1,194,774	\$2,814,086	\$31,861	\$401,769	\$17,973	\$1,652,756	\$2,872,801	97.1	\$84,303	\$454,272	\$70,017
Nov. 602		\$1,619,312	\$1,194,774	\$2,814,086	\$31,861	\$401,769	\$17,973	\$1,652,756	\$2,872,801	97.1	\$84,303	\$454,272	\$70,017
Nov. 602		\$1,619,312	\$1,194,774	\$2,814,086	\$31,861	\$401,769	\$17,973	\$1,652,756	\$2,872,801	97.1	\$84,303	\$454,272	\$70,017
Bessemer & Lake Erie	Nov. 214	\$2,179,453	\$1,376	\$2,180,829	\$148,081	\$486,170	\$19,207	\$458,962	\$1,182,333	53.9	\$1,012,095	\$542,676	\$280,478
Nov. 214		\$2,179,453	\$1,376	\$2,180,829	\$148,081	\$486,170	\$19,207	\$458,962	\$1,182,333	53.9	\$1,012,095	\$542,676	\$280,478
Nov. 214		\$2,179,453	\$1,376	\$2,180,829	\$148,081	\$486,170	\$19,207	\$458,962	\$1,182,333	53.9	\$1,012,095	\$542,676	\$280,478
Boston & Maine	Nov. 1,757	\$5,524,491	\$1,191,599	\$6,716,090	\$1,537,114	\$5,012,007	\$19,010	\$4,634,014	\$11,553,635	55.4	\$9,629,390	\$5,299,566	\$2,720,207
Nov. 1,757		\$5,524,491	\$1,191,599	\$6,716,090	\$1,537,114	\$5,012,007	\$19,010	\$4,634,014	\$11,553,635	55.4	\$9,629,390	\$5,299,566	\$2,720,207
Nov. 1,757		\$5,524,491	\$1,191,599	\$6,716,090	\$1,537,114	\$5,012,007	\$19,010	\$4,634,014	\$11,553,635	55.4	\$9,629,390	\$5,299,566	\$2,720,207
Burlington-Rock Island	Nov. 228	\$2,632,030	\$602,249	\$3,234,279	\$1,141,363	\$1,066,884	\$100,651	\$1,530,911	\$5,734,171	78.1	\$1,605,281	\$652,715	\$286,493
Nov. 228		\$2,632,030	\$602,249	\$3,234,279	\$1,141,363	\$1,066,884	\$100,651	\$1,530,911	\$5,734,171	78.1	\$1,605,281	\$652,715	\$286,493
Nov. 228		\$2,632,030	\$602,249	\$3,234,279	\$1,141,363	\$1,066,884	\$100,651	\$1,530,911	\$5,734,171	78.1	\$1,605,281	\$652,715	\$286,493
Cambria & Indiana	Nov. 35	\$1,509,625	\$1,509,625	\$3,019,250	\$1,509,625	\$1,509,625	\$1,509,625	\$1,509,625	\$3,019,250	99.1	\$14,000	\$661,143	\$43,686
Nov. 35		\$1,509,625	\$1,509,625	\$3,019,250	\$1,509,625	\$1,509,625	\$1,509,625	\$1,509,625	\$3,019,250	99.1	\$14,000	\$661,143	\$43,686
Nov. 35		\$1,509,625	\$1,509,625	\$3,019,250	\$1,509,625	\$1,509,625	\$1,509,625	\$1,509,625	\$3,019,250	99.1	\$14,000	\$661,143	\$43,686
Canadian Pacific Lines in Maine	Nov. 234	\$254,560	\$29,311	\$283,871	\$80,200	\$61,904	\$7,858	\$152,051	\$313,897	102.5	\$7,779	\$23,114	\$83,744
Nov. 234		\$254,560	\$29,311	\$283,871	\$80,200	\$61,904	\$7,858	\$152,051	\$313,897	102.5	\$7,779	\$23,114	\$83,744
Nov. 234		\$254,560	\$29,311	\$283,871	\$80,200	\$61,904	\$7,858	\$152,051	\$313,897	102.5	\$7,779	\$23,114	\$83,744
Canadian Pacific Lines in Vermont	Nov. 90	\$155,452	\$17,834	\$173,286	\$94,052	\$73,500	\$5,424	\$191,936	\$306,437	80.7	\$90,616	\$269,926	\$113,120
Nov. 90		\$155,452	\$17,834	\$173,286	\$94,052	\$73,500	\$5,424	\$191,936	\$306,437	80.7	\$90,616	\$269,926	\$113,120
Nov. 90		\$155,452	\$17,834	\$173,286	\$94,052	\$73,500	\$5,424	\$191,936	\$306,437	80.7	\$90,616	\$269,926	\$113,120
Central of Georgia	Nov. 1,816	\$2,285,599	\$218,503	\$2,504,102	\$437,448	\$457,738	\$104,374	\$1,458,832	\$2,625,841	96.6	\$92,759	\$253,525	\$163,515
Nov. 1,816		\$2,285,599	\$218,503	\$2,504,102	\$437,448	\$457,738	\$104,374	\$1,458,832	\$2,625,841	96.6	\$92,759	\$253,525	\$163,515
Nov. 1,816		\$2,285,599	\$218,503	\$2,504,102	\$437,448	\$457,738	\$104,374	\$1,458,832	\$2,625,841	96.6	\$92,759	\$253,525	\$163,515
Central of New Jersey	Nov. 418	\$2,297,613	\$488,994	\$2,786,607	\$465,732	\$578,293	\$52,304	\$1,681,778	\$2,942,554	92.1	\$3,824,401	\$433,884	\$267,359
Nov. 418		\$2,297,613	\$488,994	\$2,786,607	\$465,732	\$578,293	\$52,304	\$1,681,778	\$2,942,554	92.1	\$3,824,401	\$433,884	\$267,359
Nov. 418		\$2,297,613	\$488,994	\$2,786,607	\$465,732	\$578,293	\$52,304	\$1,681,778	\$2,942,554	92.1	\$3,824,401	\$433,884	\$267,359
Central of Pennsylvania	Nov. 213	\$1,517,703	\$16,734	\$1,534,437	\$130,736	\$295,134	\$21,372	\$533,029	\$1,018,601	64.5	\$560,671	\$64,685	\$731,114
Nov. 213		\$1,517,703	\$16,734	\$1,534,437	\$130,736	\$295,134	\$21,372	\$533,029	\$1,018,601	64.5	\$560,671	\$64,685	\$731,114
Nov. 213		\$1,517,703	\$16,734	\$1,534,437	\$130,736	\$295,134	\$21,372	\$533,029	\$1,018,601	64.5	\$560,671	\$64,685	\$731,114
Central of Vermont	Nov. 422	\$698,000	\$40,000	\$738,000	\$145,630	\$126,842	\$11,920	\$354,798	\$643,938	80.8	\$152,971	\$56,669	\$56,669
Nov. 422		\$698,000	\$40,000	\$738,000	\$145,630	\$126,842	\$11,920	\$354,798	\$643,938	80.8	\$152,971	\$56,669	\$56,669
Nov. 422		\$698,000	\$40,000	\$738,000	\$145,630	\$126,842	\$11,920	\$354,798	\$643,938	80.8	\$152,971	\$56,669	\$56,669
Chesapeake & Ohio	Nov. 5,062	\$2,667,824	\$67,716	\$2,735,540	\$408,764	\$511,868	\$45,680	\$1,041,643	\$21,398,214	77.3	\$6,298,275	\$3,319,749	\$3,244,608
Nov. 5,062		\$2,667,824	\$67,716	\$2,735,540	\$408,764	\$511,868	\$45,680	\$1,041,643	\$21,398,214	77.3	\$6,298,275	\$3,319,749	\$3,244,608
Nov. 5,062		\$2,667,824	\$67,716	\$2,735,540	\$408,764	\$511,868	\$45,680	\$1,041,643	\$21,398,214	77.3	\$6,298,275	\$3,319,749	\$3,244,608
Chicago & Eastern Illinois	Nov. 910	\$1,946,357	\$286,236	\$2,232,593	\$218,778	\$451,066	\$87,872	\$1,126,335	\$2,026,175	82.4	\$431,851	\$187,500	\$103,147
Nov. 910		\$1,946,357	\$286,236	\$2,232,593	\$218,778	\$451,066	\$87,872	\$1,126,335	\$2,026,175	82.4	\$431,851	\$187,500	\$103,147
Nov. 910		\$1,946,357	\$286,236	\$2,232,593	\$218,778	\$451,066	\$87,872	\$1,126,335	\$2,026,175	82.4	\$431,851	\$187,500	\$103,147
Chicago & Illinois Midland	Nov. 131	\$693,118	\$1,000	\$694,118	\$84,579	\$119,784	\$23,879	\$188,310	\$47,930	60.7	\$290,481	\$113,379	\$177,197
Nov. 131		\$693,118	\$1,000	\$694,118	\$84,579	\$119,784	\$23,879	\$188,310	\$47,930	60.7	\$290,481	\$113,379	\$177,197
Nov. 131		\$693,118	\$1,000	\$694,118	\$84,579	\$119,784	\$23,879	\$188,310	\$47,930	60.7	\$290,481	\$113,379	\$177,197
Chicago & North Western	Nov. 8,058	\$11,412,169	\$1,922,688	\$13,334,857	\$2,039,022	\$2,816,697	\$301,704	\$6,842,835	\$12,746,699	84.5	\$2,340,426	\$1,520,017	\$1,107,919
Nov. 8,058		\$11,412,169	\$1,922,688	\$13,334,857	\$2,039,022	\$2,816,697	\$301,704	\$6,842					

How to cure a ROUGH-RIDING LOCOMOTIVE



FRANKLIN E-2 BUFFERS will reduce maintenance by damping and absorbing horizontal shake and vertical vibration.

The E-2 radial buffer incorporates a built-in draft gear with large bearing areas. Two large adjusting wedges, energized by compressed springs, hold the chafing plates in firm contact, permitting no slack but retaining complete freedom of movement between engine and tender. This effectively dampens and absorbs both horizontal shake and vertical vibration of the locomotive. Only the Franklin "E" type buffers provide this shock absorbing action.

The E-2 radial buffer will make any locomotive, at any speed, a better riding engine. It requires minimum attention and will cut down maintenance on many related locomotive parts by markedly reducing shake and bounce. Crews appreciate the greater comfort it brings.

The above charts show the effectiveness of this buffer. These charts were made on a western road — two days apart — on the same locomotive, between the same mileposts, pulling the same trainload in the same direction at the same speed. The E-2 buffer, as compared with the wedge-type buffer originally used, reduced vertical bounce 50%, horizontal shake 66%, and acceleration of vertical bounce (impact factor) 62%.



FRANKLIN RAILWAY SUPPLY COMPANY

NEW YORK • CHICAGO • MONTREAL

STEAM DISTRIBUTION SYSTEM • BOOSTER • RADIAL BUFFER • COMPENSATOR AND SNUBBER • POWER REVERSE GEARS
AUTOMATIC FIRE DOORS • DRIVING BOX LUBRICATORS • STEAM GRATE SHAKERS • FLEXIBLE JOINTS • CAR CONNECTION

January 17, 1948

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MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1947—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Net railway operating income		
		Freight	Passenger	Total (inc. misc.)	Way and structures	Maintenance of equipment	Traffic				
Colorado & Southern	Nov. 11 mos.	745	\$1,048,099	\$96,794	\$1,247,135	\$181,002	\$164,922	\$489,744	\$905,909	72.6	\$137,122
Colorado & Southern	Nov. 11 mos.	747	9,190,345	1,112,347	11,328,204	1,373,784	1,963,586	4,749,530	9,228,767	81.5	2,099,437
Ft. Worth & Denver City	Nov. 11 mos.	902	10,711,742	1,331,059	13,431,059	1,939,925	1,811,515	4,717,700	9,561,725	71.2	3,869,334
Colorado & Wyoming	Nov. 11 mos.	42	128,636	.....	194,966	8,163	19,199	74,291	109,824	56.3	85,142
Colorado & Wyoming	Nov. 11 mos.	42	1,120,037	.....	1,863,735	112,885	127,507	629,750	1,073,985	57.7	41,563
Columbus & Greenville	Nov. 11 mos.	168	132,772	1,590	165,325	27,855	29,207	54,359	50,440	96.5	374,337
Columbus & Greenville	Nov. 11 mos.	168	1,411,422	33,207	1,553,986	45,577	271,993	584,859	1,499,364	96.5	43,120
Delaware & Hudson	Nov. 11 mos.	794	4,339,856	178,099	4,642,965	654,784	979,499	1,829,264	3,691,610	79.5	951,355
Delaware & Hudson	Nov. 11 mos.	794	44,019,734	2,618,693	48,563,232	6,178,371	10,251,253	18,397,959	37,212,525	76.5	5,887,744
Delaware, Lackawanna & Western	Nov. 11 mos.	973	5,648,752	3,627,611	7,038,515	843,630	1,044,913	3,266,310	5,515,139	78.0	1,551,186
Delaware, Lackawanna & Western	Nov. 11 mos.	973	58,208,341	9,257,943	73,749,247	11,566,990	11,599,889	33,438,098	58,010,170	78.7	7,378,310
Denver & Rio Grande Western	Nov. 11 mos.	2,467	4,869,562	207,524	5,294,195	561,509	936,705	1,963,270	3,830,908	72.4	1,463,287
Denver & Rio Grande Western	Nov. 11 mos.	2,467	47,786,631	2,935,726	53,039,998	6,419,714	10,056,510	19,659,383	40,108,657	75.6	12,931,341
Detroit & Mackinac	Nov. 11 mos.	230	151,984	18,567	1,665,671	331,397	194,972	365,052	978,521	58.7	687,150
Detroit & Toledo Shore Line	Nov. 11 mos.	50	482,749	.....	45,166	33,914	11,898	153,205	253,817	52.1	67,891
Detroit & Toledo Shore Line	Nov. 11 mos.	50	5,010,609	.....	5,037,015	547,459	393,360	1,516,519	2,691,561	53.4	765,704
Detroit, Toledo & Ironton	Nov. 11 mos.	464	989,337	771	1,030,774	133,678	178,115	207,573	655,948	63.6	374,826
Detroit, Toledo & Ironton	Nov. 11 mos.	464	11,348,327	10,142	11,850,415	1,399,919	1,826,212	3,098,104	6,892,780	58.2	4,957,635
Duluth, Missabe & Iron Range	Nov. 11 mos.	548	2,551,736	3,102	2,938,990	431,088	410,584	1,634,709	2,542,497	86.5	396,493
Duluth, Missabe & Iron Range	Nov. 11 mos.	547	33,324,685	34,059	38,795,010	4,615,385	4,466,822	10,655,878	20,395,590	52.6	18,399,420
Duluth, Winnipeg & Pacific	Nov. 11 mos.	175	3,261,000	19,000	3,337,900	644,908	419,644	3,323,232	1,350,880	75.2	826,821
Elgin, Joliet & Eastern	Nov. 11 mos.	391	277,959	9	3,320,829	22,957	561,349	1,332,067	2,238,434	67.4	1,082,395
Elgin, Joliet & Eastern	Nov. 11 mos.	391	2,639,307	122	35,151,952	2,637,846	4,994,436	13,886,025	22,452,265	63.9	12,699,687
Erie	Nov. 11 mos.	2,229	12,061,972	609,156	13,496,780	1,073,205	2,185,881	6,071,312	10,164,351	75.3	3,332,429
Erie	Nov. 11 mos.	2,229	123,060,688	6,620,581	138,803,692	15,175,519	24,194,138	61,146,352	109,789,215	79.1	29,014,477
Florida East Coast	Nov. 11 mos.	575	1,403,781	498,542	2,092,403	424,032	430,614	846,047	1,905,142	91.1	187,261
Florida East Coast	Nov. 11 mos.	604	15,112,828	6,990,494	24,339,528	4,385,194	6,685,517	9,368,765	21,290,279	87.5	3,048,971
Georgia Railroad	Nov. 11 mos.	326	613,309	26,588	687,777	74,256	103,540	348,908	582,612	84.7	105,165
Georgia Railroad	Nov. 11 mos.	327	6,394,863	325,633	7,194,112	945,710	1,154,869	2,972,212	6,262,091	87.0	932,021
Georgia & Florida	Nov. 11 mos.	408	190,611	2,328	200,040	50,137	33,006	11,807	197,566	98.8	2,474
Georgia & Florida	Nov. 11 mos.	408	2,213,748	26,412	2,305,577	613,850	321,024	133,865	980,358	93.3	154,143
Grand Trunk Western	Nov. 11 mos.	972	3,577,000	184,000	4,025,000	693,629	50,960	1,870,128	3,063,353	76.1	961,647
Grand Trunk Western	Nov. 11 mos.	972	36,592,000	2,113,000	41,480,000	6,199,729	6,973,209	55,523	35,583,831	81.0	7,896,169
Canadian Nat'l Lines in New England	Nov. 11 mos.	172	170,000	3,500	186,000	72,127	40,738	2,549	111,206	127.1	50,469
Canadian Nat'l Lines in New England	Nov. 11 mos.	172	1,722,000	129,900	1,990,100	706,464	404,026	28,014	1,199,895	122.3	281,580
Great Northern	Nov. 11 mos.	8,333	14,782,457	942,123	17,689,226	2,749,124	3,054,742	6,540,953	12,586,296	71.2	5,102,330
Great Northern	Nov. 11 mos.	8,333	150,909,350	11,894,241	177,261,671	29,030,297	28,441,585	62,419,780	129,651,411	73.1	47,610,260
Green Bay & Western	Nov. 11 mos.	224	263,452	30	269,642	31,084	19,818	15,316	86,236	60.7	105,989
Green Bay & Western	Nov. 11 mos.	224	2,777,836	412	2,844,158	699,887	296,489	162,145	926,806	78.1	624,050
Gulf, Mobile & Ohio	Nov. 11 mos.	2,904	5,568,815	506,468	6,136,797	1,154,075	1,189,177	2,044,897	2,061,990	75.6	1,303,817
Gulf, Mobile & Ohio	Nov. 11 mos.	2,904	55,687,815	6,173,737	66,638,009	11,554,075	11,189,177	2,172,831	21,658,397	78.2	16,504,386
Illinois Central (System)	Nov. 11 mos.	6,581	16,437,675	2,000,786	20,465,578	3,627,419	3,651,013	8,040,024	16,600,251	81.1	3,865,327
Illinois Central (System)	Nov. 11 mos.	6,582	174,668,346	23,527,875	219,782,742	36,435,518	38,231,906	79,317,195	167,506,104	76.2	52,276,638
Illinois Terminal	Nov. 11 mos.	474	800,029	124,627	1,028,282	141,849	121,479	28,521	365,355	67.05	338,822
Illinois Terminal	Nov. 11 mos.	475	8,311,370	1,406,341	10,826,219	1,411,473	1,360,281	298,913	7,268,227	67.14	3,557,992
Kansas City Southern	Nov. 11 mos.	890	276,950	89,908	3,102,155	338,227	342,663	853,876	1,601,642	51.6	1,500,513
Kansas City Southern	Nov. 11 mos.	890	28,368,940	1,087,312	31,963,079	3,321,434	4,085,935	9,465,662	18,905,479	52.6	13,057,479
Kansas, Oklahoma & Gulf	Nov. 11 mos.	328	453,394	1,059	457,519	55,127	39,005	15,147	131,305	56.4	199,272
Kansas, Oklahoma & Gulf	Nov. 11 mos.	328	4,475,896	12,999	4,529,567	562,205	353,341	1,268,865	2,525,463	55.7	2,006,104
Lake Superior & Ishpeming	Nov. 11 mos.	156	232,253	62	281,805	39,273	39,502	98,875	188,632	66.9	93,173
Lake Superior & Ishpeming	Nov. 11 mos.	156	2,917,453	895	3,624,810	462,948	428,006	859,040	1,860,367	51.6	1,763,863
Lehigh & Hudson River	Nov. 11 mos.	96	265,534	.....	266,369	33,828	77,732	24,604	187,137	70.3	74,032
Lehigh & Hudson River	Nov. 11 mos.	96	2,778,902	.....	2,789,022	489,277	392,772	967,052	2,014,139	72.2	774,103
Lehigh & New England	Nov. 11 mos.	193	704,630	.....	713,969	82,417	101,681	227,896	449,370	62.9	264,599
Lehigh & New England	Nov. 11 mos.	193	6,738,940	.....	6,811,229	788,741	1,059,188	2,137,704	4,372,132	63.8	2,439,918
Lehigh Valley	Nov. 11 mos.	1,253	58,323,778	4,073,723	66,576,730	8,956,477	11,004,742	31,043,705	55,114,578	82.8	11,462,152
Louisiana & Arkansas	Nov. 11 mos.	756	1,293,585	49,092	1,405,819	148,967	112,207	470,150	809,794	57.6	596,025
Louisiana & Arkansas	Nov. 11 mos.	756	13,557,659	886,465	14,725,813	1,950,755	1,488,361	4,629,236	8,989,136	61.0	5,736,762
Net railway operating income											
1947											\$19,863
1946											\$19,863
1945											\$19,863
1944											\$19,863
1943											\$19,863
1942											\$19,863
1941											\$19,863
1940											\$19,863
1939											\$19,863
1938											\$19,863
1937											\$19,863
1936											\$19,863
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1916											\$19,863
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1914											\$19,863
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1911											\$19,863
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1895											\$19,863
1894											\$19,863
1893											\$19,863
1892											\$19,863
1891											\$19,863
1890											

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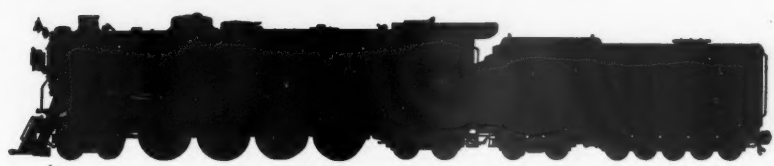
Railway Age—January 17, 1948

228,576
 1,965,323
 226,663
 2,434,568
 246,245
 5,736,707
 596,025
 57.6
 61.0
 809,794
 8,989,136
 470,150
 4,629,236
 40,821
 440,444
 112,207
 1,488,361
 148,967
 1,950,755
 11,405,819
 14,725,843
 586,465
 59,092
 13,537,639
 13,537,639
 756
 11 mos.



improved water circulation

increases steaming efficiency



The installation of Security Circulators in existing steam locomotives results in a circulation of water from the side water-legs, through the Circulators, over the top of the crown sheet.

Besides this, the Security Circulators, located right in the path of the hot gases, provide a very effective additional heating area for speeding evaporation.

Thus in two ways Security Circulators aid in greatly improving the steaming efficiency of a locomotive.

AMERICAN ARCH COMPANY, Inc.

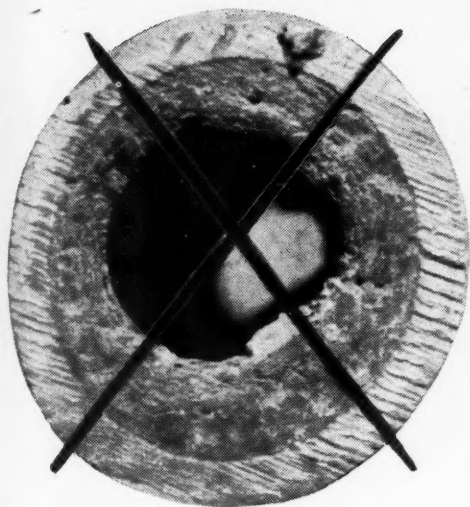
NEW YORK • CHICAGO

SECURITY CIRCULATOR DIVISION

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1947—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues				Operating expenses				Operating ratio	Net railway operation from	Net railway operating income	
		Freight	Passenger (inc. misc.)	Total	Way and structures	Maintenance of equipment	Traffic	Trans- portation	Total			1947	1946
Louisville & Nashville	Nov. 11 mos.	4,766	\$14,335,188	\$1,181,717	\$16,490,013	\$2,397,254	\$3,294,218	\$260,975	\$7,022,557	\$13,614,375	82.6	\$2,875,638	\$1,488,151
Maine Central	Nov. 11 mos.	4,767	146,801,809	14,129,423	171,699,394	24,722,877	36,409,534	3,014,885	71,419,921	141,823,392	82.9	29,346,002	14,081,317
Midland Valley	Nov. 11 mos.	1,408	1,550,997	13,707	1,620,701	226,268	214,557	96,845	525,901	1,146,124	70.7	47,299,411	21,609,448
Minneapolis & St. Louis	Nov. 11 mos.	1,408	16,011,256	120,470	16,177,832	2,473,887	2,542,799	1,011,773	5,541,808	12,418,421	74.3	4,259,441	2,192,955
Minneapolis, St. Paul & S. Marie	Nov. 11 mos.	3,224	2,941,122	119,781	3,219,581	488,683	464,255	57,293	1,279,504	2,385,413	74.1	834,168	356,356
Duluth, South Shore & Atlantic	Nov. 11 mos.	3,224	26,751,668	1,472,181	30,053,751	4,569,071	6,037,247	12,471,840	24,500,715	40,503,66	81.5	5,603,083	3,197,291
Spokane International	Nov. 11 mos.	152	150,747	1,369	162,823	27,686	15,116	3,611	52,702	106,842	65.6	55,981	11,222
Mississippi Central	Nov. 11 mos.	152	163,980	17,904	176,330	378,529	178,357	40,720	610,327	1,291,327	73.2	47,003	152,945
Missouri & Arkansas	Nov. 11 mos.	152	146,454	—145	146,454	36,878	17,620	12,052	42,063	53,304	77.8	53,304	10,988
Missouri-Illinois	Nov. 11 mos.	172	379,364	3,962	3,822,301	386,630	184,149	117,252	413,791	1,182,996	73.5	427,274	138,554
Missouri-Kansas-Texas Lines	Nov. 11 mos.	3,253	4,994,908	336,305	5,859,562	875,512	874,853	2,025,603	24,936,645	4,645,501	79.3	1,214,061	529,538
Missouri Pacific	Nov. 11 mos.	7,023	152,020,019	14,136,594	180,727,928	27,490,379	31,125,006	4,106,106	71,035,030	140,583,293	77.8	40,144,635	12,938,329
Gulf Coast Lines	Nov. 11 mos.	1,735	33,815,344	1,020,219	36,466,274	6,120,681	4,331,420	765,044	12,085,971	25,119,531	68.9	11,346,742	2,726,609
International-Great Northern	Nov. 11 mos.	1,110	21,862,813	2,454,162	27,119,577	4,907,577	4,342,561	501,106	11,875,162	22,948,842	84.6	4,170,719	1,502,716
Monongahela	Nov. 11 mos.	170	777,528	1,170	783,192	71,867	57,962	881	225,120	360,666	46.1	422,526	104,538
Montour	Nov. 11 mos.	51	2,926,666	14,385	7,586,848	775,974	696,442	9,218	2,141,861	3,676,888	76.5	3,909,967	1,134,097
Nashville, Chattanooga & St. Louis	Nov. 11 mos.	1,052	2,537,865	152,751	2,930,649	500,416	886,850	59,913	1,349,292	2,949,257	82.4	516,830	301,456
New York Central	Nov. 11 mos.	10,746	44,802,949	108,118,251	633,509,485	87,449,433	131,423,229	10,237,947	282,680,634	841,832,612	85.5	91,676,873	55,020,578
Pittsburgh & Lake Erie	Nov. 11 mos.	1,687	80,496,729	1,448,305	83,951,047	10,377,619	13,906,943	2,008,768	31,911,312	61,200,143	72.9	22,730,904	8,941,640
New York, Chicago & St. Louis	Nov. 11 mos.	1,687	80,496,729	1,448,305	83,951,047	10,377,619	13,906,943	2,008,768	31,911,312	61,200,143	72.9	22,730,904	8,941,640
New York, New Haven & Hartford	Nov. 11 mos.	1,843	7,550,331	4,385,566	13,223,556	1,925,821	1,994,009	313,535	5,736,036	10,863,615	82.2	2,359,941	1,155,000
New York Connecting	Nov. 11 mos.	21	1,809,960	15,068,046	141,233,224	21,090,314	20,679,982	2,671,137	60,811,460	115,188,223	81.6	26,044,995	10,283,000
New York, Ontario & Western	Nov. 11 mos.	547	560,345	1,506	607,767	119,623	115,908	28,176	349,456	645,603	106.2	37,836	56,768
New York, Susquehanna & Western	Nov. 11 mos.	547	6,956,010	115,857	7,064,455	1,193,633	1,267,028	292,035	3,884,115	7,152,708	93.1	531,747	571,456
Norfolk & Western	Nov. 11 mos.	120	346,254	39,536	405,808	31,564	42,338	5,028	163,812	2,797,900	73.4	1,067,531	393,757
Norfolk Southern	Nov. 11 mos.	120	3,254,076	434,782	3,865,431	392,195	466,049	54,338	1,643,525	2,797,900	73.4	1,067,531	393,757
Norfolk & Western	Nov. 11 mos.	2,129	13,615,007	475,177	14,590,593	1,837,979	2,529,989	246,098	4,665,216	9,735,178	66.7	4,855,415	2,786,433
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355	2,540,565	44,948,811	99,529,720	66.0	51,223,015	28,835,932
Norfolk Southern	Nov. 11 mos.	727	7,729,489	6,031,332	13,760,776	19,014,555	28,328,355						



SCALED

Superheater Units Drastically Reduce Locomotive Efficiency and the Life of the Units

Scale in superheater units, throttle, or any steam carrying vessel is the result of water carryover.

That is a major condition that exists on all steam locomotives today, and one which can be controlled.

How?

BY THE ELESKO STEAM DRYER SYSTEM...INVESTIGATE.

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A-1903 (3020)

Superheaters • Superheater Pyrometers • Exhaust Steam Injectors • Steam Dryers • Feedwater Heaters • Steam Generators • Oil Separators • American-Throttles

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1947—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Net from operation	Railway tax-accruals	Net railway operating income
		Freight	Passenger	Total (inc. misc.)	Maintenance of way and structures	Equipment	Traffic				
Pennsylvania-Reading Seashore Lines	Nov. 136	\$585,436	\$198,436	\$783,872	88,959	120,304	36,890	113.9	148,110	79,341	105,867
Pittsburgh & Shawmut	11 mos. 389	5,435,525	4,635,608	10,071,133	6,356,157	10,213,723	1,225,528	81.3	1,596,537	847,150	1,084,281
Pittsburgh & West Virginia	11 mos. 97	2,327,548	2,337,161	4,664,709	6,915,171	10,584,609	1,267,490	93.4	2,816,289	955,672	1,025,884
Reading	11 mos. 136	5,970,465	636,157	6,606,622	1,039,528	1,263,026	382,521	81.5	1,596,537	847,150	1,084,281
Richmond, Fredericksburg & Potomac	11 mos. 135	93,139,095	6,915,171	100,054,266	16,603,976	19,985,499	1,267,490	77.0	23,876,004	11,989,152	11,087,896
Rutland	Nov. 118	1,136,161	448,672	1,584,833	275,747	302,550	23,657	84.6	277,844	204,955	9,129
St. Louis-San Francisco	11 mos. 407	13,124,927	6,458,678	19,583,605	2,640,385	3,157,120	197,653	76.8	5,706,676	2,933,095	2,011,199
St. Louis, San Francisco & Texas	11 mos. 407	3,894,231	525,483	4,419,714	691,331	82,189	11,298	96.3	5,706,676	2,933,095	2,011,199
St. Louis-Southwestern Lines	Nov. 4,645	7,908,585	602,357	8,510,942	1,219,507	1,384,937	223,394	99.2	277,844	204,955	9,129
Seaboard Air Line	11 mos. 160	4,645	80,234,521	80,239,166	13,535,159	15,652,954	2,284,863	76.8	2,147,327	1,117,215	1,063,886
Southern Railway	Nov. 1,575	4,976,709	71,311	5,048,020	611,261	586,995	130,966	75.7	889,905	310,633	261,823
Alabama Great Southern	Nov. 4,156	46,848,007	793,152	47,641,159	6,383,394	5,924,499	1,381,758	58.6	2,153,617	569,260	1,374,161
Cinn., New Orleans & Texas Pacific	Nov. 4,156	85,514,042	14,258,962	99,773,004	17,202,150	19,342,847	3,086,515	61.2	19,079,142	7,723,223	9,357,578
Georgia Southern & Florida	Nov. 316	12,679,343	1,466,784	14,146,127	2,443,035	3,194,154	321,144	84.0	1,567,480	640,814	652,345
New Orleans & Northeastern	Nov. 337	2,717,612	234,951	2,952,563	29,760,164	36,662,248	3,577,577	81.5	19,925,706	8,808,885	7,852,873
Southern Pacific	Nov. 337	27,437,384	2,686,403	30,123,787	6,345,278	6,398,984	589,827	73.8	5,106,667	2,533,833	2,099,235
Texas & New Orleans	Nov. 8,195	27,220,212	3,661,890	30,882,102	45,965,548	37,016,986	41,100,102	69.2	45,574,011	22,115,545	19,039,257
Spokane, Portland & Seattle	Nov. 944	18,536,239	834,284	19,370,523	1,172,302	1,308,486	2,026,963	77.4	1,24,227	4,1034	3,509,055
Tennessee Central	Nov. 286	356,251	8,288	364,539	68,205	76,556	19,088	76.6	4,826,581	1,833,539	1,685,325
Texas & Pacific	Nov. 1,854	5,239,048	451,746	5,690,794	676,183	769,192	100,342	50.0	516,897	256,027	216,651
Texas Mexican	Nov. 1,865	47,866,097	5,407,534	53,273,631	7,832,938	8,869,788	1,712,195	57.7	4,197,949	1,965,547	1,773,604
Toledo, Peoria & Western	Nov. 162	236,034	54	236,088	28,854	31,397	4,708	85.6	4,792,688	2,626,254	1,139,264
Union Pacific System	Nov. 9,764	29,949,556	3,519,873	33,469,429	6,238,877	6,238,877	703,132	70.2	3,031,985	1,202,612	1,283,299
Utah	Nov. 9,774	29,927,757	4,212,427	34,140,184	4,202,821	4,202,821	703,132	69.2	31,979,133	13,584,618	13,163,654
Virginian	Nov. 111	157,932	1,692,191	1,850,123	303,309	526,037	7,525	66.2	799,167	191,124	488,075
Wabash	Nov. 661	3,053,142	4,985	3,058,127	338,759	629,239	34,581	76.6	4,826,581	1,833,539	1,685,325
Ann Arbor	Nov. 661	3,053,142	4,985	3,058,127	338,759	629,239	34,581	93.2	26,282	18,277	37,402
Western Maryland	Nov. 837	3,561,635	167,933	3,729,568	1,343,532	1,343,532	233,776	90.9	346,471	209,775	156,696
Western Pacific	Nov. 837	3,561,635	167,933	3,729,568	1,343,532	1,343,532	233,776	73.4	1,635,734	701,320	612,667
Wheeling & Lake Erie	Nov. 1,195	3,420,821	138,639	3,559,460	528,373	6,499,499	688,895	75.6	14,082,798	4,824,919	6,612,667
Wisconsin Central	Nov. 1,051	1,965,935	43,896	2,009,831	2,166,834	2,166,834	53,731	105.2	77,790	144,452	319,482
	11 mos. 1,051	21,981,519	536,412	22,517,931	2,816,210	3,428,888	53,731	78.5	9,113,209	4,742,127	3,003,448
								73.8	96,451,268	50,748,928	32,449,506
								101.9	2,975	14,647	1,456
								93.3	113,800	156,835	15,885
								61.1	1,231,576	820,000	613,855
								59.4	13,625,926	6,874,700	8,287,752
								73.1	2,269,742	847,036	950,215
								74.0	22,360,236	8,594,755	9,091,391
								81.1	120,250	59,662	59,662
								80.1	1,393,929	662,144	558,103
								68.6	12,021,433	5,120,000	7,298,607
								64.8	1,280,362	606,478	602,530
								69.7	8,456,848	3,420,103	4,516,337
								64.9	9,652,503	5,495,572	5,014,904
								78.4	466,902	96,322	230,553
								72.4	6,663,077	2,162,672	3,200,266

1948
 Wisconsin Central
 Nov. 11 mos.
 1,051
 1,051
 1,965,935
 21,981,519
 43,896
 536,412
 2,166,834
 24,110,019
 2,816,210
 255,961
 318,868
 3,428,888
 53,731
 553,156
 994,829
 9,835,750
 8,692,584
 17,861,021
 64.9
 9,658,503
 5,495,572
 5,914,904
 3,289,234
 2,332,319
 3,209,260
 2,332,319
 466,902
 96,324
 2,162,672
 6,663,077

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AMERICAN ASSOCIATION OF BAGGAGE TRAFFIC MANAGERS.—E. P. Soebbing, 1450 Railway Exchange Bldg., St. Louis 1, Mo. Annual meeting, January 21-23, 1948, Rice Hotel, Houston, Tex.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—B. D. Branch, C. R. R. of N. J., 143 Liberty St., New York 6, N. Y.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—Miss Elise LaChance, Room 901, 431 S. Dearborn St., Chicago 5, Ill. Annual meeting, June 8-10, 1948, Hotel Stevens, Chicago, Ill.

AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS.—E. A. Abbott, 1103 Cleveland St., Evanston, Ill.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—Miss Elise LaChance, Room 901, 431 S. Dearborn St., Chicago 5, Ill. Annual meeting, September 20-22, 1948, Hotel Stevens, Chicago, Ill.

AMERICAN RAILWAY CAR INSTITUTE.—W. C. Tabbert, 19 Rector St., New York 6, N. Y.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—W. J. Walsh, B. & O. R. R., Baltimore 1, Md. Annual meeting, April 5-7, 1948, Hotel Roosevelt, New Orleans, La.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in cooperation with the Association of American Railroads, Engineering Division.—W. S. Lacher, 59 E. Van Buren St., Chicago 5, Ill. Annual meetings, March 16-18, 1948, Palmer House, Chicago, Ill.

AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION.—Harry Walker, D. & R. G. W. Ry., Room 204, Rio Grande Bldg., Denver, Colo.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—C. E. Huntley, Tower Bldg., Washington 5, D. C.

AMERICAN SOCIETY FOR TESTING MATERIALS.—R. J. Painter, Asst. Secretary, 1916 Race St., Philadelphia 3, Pa. Spring meeting and Committee Week, March 1-5, 1948, Hotel Statler, Washington, D. C. Annual meeting, June 21-27, 1948, Book-Cadillac Hotel, Detroit, Mich.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—C. E. Davies, 29 W. 39th St., New York 18, N. Y. Semi-annual meeting, May 30-June 4, 1948, Milwaukee, Wis. Annual meeting, November 28-December 3, 1948, New York, N. Y. Railroad Division.—E. L. Woodward, Railway Mechanical Engineer, 105 W. Adams St., Chicago 3, Ill.

AMERICAN WOOD-PRESERVERS' ASSOCIATION.—H. L. Dawson, 1427 Eye St., N. W., Washington 5, D. C. Annual meeting, April 27-29, 1948, Hotel St. Paul, St. Paul, Minn.

ASSOCIATED TRAFFIC CLUBS OF AMERICA, INC.—R. A. Ellison, Cincinnati Chamber of Commerce, 1203 C. of C. Bldg., Cincinnati 2, O.

ASSOCIATION OF AMERICAN RAILROAD DINING CAR OFFICERS.—W. F. Ziervogel, 605 S. Ranken Ave., St. Louis 3, Mo.

ASSOCIATION OF AMERICAN RAILROADS.—George M. Campbell, Transportation Bldg., Washington 6, D. C. Operations and Maintenance Department.—J. H. Aydelott, Vice-president, Transportation Bldg., Washington 6, D. C.

Operating-Transportation Division.—L. R. Knott, 59 E. Van Buren St., Chicago 5, Ill.

Operating Section.—J. C. Caviston, 30 Vesey St., New York 7, N. Y.

Transportation Section.—H. A. Eaton, 59 E. Van Buren St., Chicago 5, Ill.

Communications Section.—W. A. Fairbanks, 30 Vesey St., New York 7, N. Y.

Fire Protection and Insurance Section.—W. F. Steffens, New York Central, Room 3317, 230 Park Avenue, New York 17, N. Y.

Freight Station Section.—W. E. Todd, 59 E. Van Buren St., Chicago 5, Ill.

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York 7, N. Y.

Protective Section.—J. C. Caviston, 30 Vesey St., New York 7, N. Y.

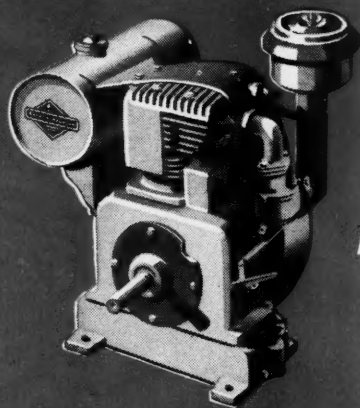
Safety Section.—J. C. Caviston, 30 Vesey St., New York 7, N. Y.

Engineering Division.—W. S. Lacher, 59 E. Van Buren St., Chicago 5, Ill.

Construction and Maintenance Section.—W. S. Lacher, 59 E. Van Buren St., Chicago 5, Ill. Annual meeting, March 16-18, 1948, Palmer House, Chicago, Ill.

Electrical Section.—W. S. Lacher, 59 E. Van Buren St., Chicago 5, Ill.

Signal Section.—R. H. C. Balliet, 30 Vesey St., New York 7,



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N. Y. Annual meeting, September 14-16, 1948, Hotel Statler, Buffalo, N. Y.

Mechanical Division.—Arthur C. Browning, 59 E. Van Buren St., Chicago 5, Ill. Annual meeting, June 28-30, 1948, Congress Hotel, Chicago, Ill.

Electrical Section.—J. A. Andreucci, 59 E. Van Buren St., Chicago 5, Ill. Annual meeting, September, 1948, Chicago, Ill.

Purchases and Stores Division.—W. J. Farrell (Executive Vice-Chairman), Transportation Bldg., Washington 6, D. C.

Freight Claim Division.—Lewis Pilcher, (Executive Vice-Chairman), 59 E. Van Buren St., Chicago 5, Ill. Annual meeting, May 11-13, 1948, McAllister Hotel, Miami, Fla.

Motor Transport Division.—Transportation Bldg., Washington 6, D. C.

Car Service Division.—W. C. Kendall, Chairman, Transportation Bldg., Washington 6, D. C.

Finance, Accounting, Taxation and Valuation Department.—E. H. Bunnell, Vice-President, Transportation Bldg., Washington 6, D. C.

Accounting Division.—E. R. Ford, Transportation Bldg., Washington 6, D. C.

Treasury Division.—E. R. Ford, Transportation Bldg., Washington 6, D. C.

Traffic Department.—Walter J. Kelly, Traffic Officer, Transportation Bldg., Washington 6, D. C.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—F. L. Johnson, Gulf, Mobile & Ohio R. R., 340 W. Harrison St., Chicago 7, Ill. Annual meeting, May 19-21, 1948, French Lick Springs Hotel, French Lick, Ind.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—E. C. Gunther, Duff-Norton Mfg. Co., 122 S. Michigan Ave., Chicago 3, Ill. Exhibit in conjunction with meeting of the American Railway Bridge and Building Association, September 20-22, 1948, Hotel Stevens, Chicago, Ill.

CANADIAN RAILWAY CLUB.—C. R. Crook, 4415 Marcl Ave., N. D. G., Montreal 28, Que. Regular meetings second Monday of each month, except June, July and August, Mount Royal Hotel, Montreal, Que.

CAR DEPARTMENT ASSOCIATION OF ST. LOUIS.—J. J. Sheehan, 1101 Missouri Pacific Bldg., St. Louis 3, Mo. Regular meetings, third Tuesday of each month, except June, July and August, Hotel De Soto, St. Louis, Mo.

CAR DEPARTMENT OFFICERS' ASSOCIATION.—F. H. Stremmel, 6536 Oxford Ave., Chicago 31, Ill. Annual meeting, September 20-23, 1948, Chicago, Ill.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—W. E. Angier, chief A. A. R. clerk, C. B. & Q. R. R., 547 W. Jackson Blvd., Chicago 6, Ill. Regular meetings, second Monday of each month except June, July and August, LaSalle Hotel, Chicago, Ill.

CENTRAL RAILWAY CLUB OF BUFFALO.—R. E. Mann, 1840-42 Hotel Statler, McKinley Square, Buffalo 5, N. Y. Regular meetings, second Thursday of each month, except June, July and August, Hotel Statler, Buffalo, N. Y.

CHICAGO LUNCHEON CLUB OF MILITARY RAILWAY SERVICE VETERANS.—Col. R. O. Jensen, Schiller Park, Ill. Luncheon, second Wednesday of each month, Chicago Traffic Club, Palmer House, Chicago, Ill.

EASTERN ASSOCIATION OF CAR SERVICE OFFICERS.—H. J. Hawthorne, Union Railroad, East Pittsburgh, Pa.

EASTERN CAR FOREMAN'S ASSOCIATION.—W. P. Dizard, 30 Church St., New York 7, N. Y. Regular meetings, second Friday of January, February (Annual Dinner), March, April, May, October and November, 29 W. 39th St., New York, N. Y.

LOCOMOTIVE MAINTENANCE OFFICERS' ASSOCIATION.—C. M. Lipscomb, 1721 Parker Street, North Little Rock, Ark. Annual meeting, September 20-23, 1948, Chicago, Ill.

MAINTENANCE OF WAY CLUB OF CHICAGO.—C. R. Knowles, Room 2000, 105 W. Adams St., Chicago 3, Ill. Regular meetings, fourth Monday of each month, October through April, inclusive, except December, when the third Monday, Hardings at the Fair.

MASTER BOILER MAKERS' ASSOCIATION.—A. F. Stiglmeier, 29 Parkwood St., Albany 3, N. Y. Annual meeting, September 20-23, 1948, Chicago, Ill.

METROPOLITAN MAINTENANCE OF WAY CLUB.—John Vreeland, Simmons-Boardman Publishing Corp., 30 Church St., New York 7, N. Y. Meets in October, December, February and April. Next meeting, February 28, 1948, dinner, Hotel Sheraton, Skyline Room, New York, N. Y.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—Ben Smart, 7413 New Post Office Bldg., Washington 25, D. C. Annual meeting, November 15-18, 1948, Hotel Oglethorpe, Savannah, Ga.

NATIONAL ASSOCIATION OF SHIPPERS' ADVISORY BOARDS.—F. J. Armstrong, United States Radiator Corporation, United Artists Bldg., Detroit, Mich.

NATIONAL INDUSTRIAL TRAFFIC LEAGUE.—Edward F. Lacey, Suite 450, Munsey Bldg., Washington 4, D. C. Annual meeting, November 18-19, 1948, Hotel Pennsylvania, New York, N. Y.

NATIONAL RAILWAY APPLIANCE ASSOCIATION.—C. H. White, Room 1826, 208 S. La Salle St., Chicago 4, Ill. Meeting and exhibit in connection with A. R. E. A. Convention, March 15-18, 1948, Amphitheatre, Chicago, Ill.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston 11, Mass. Regular meetings, second Tuesday of each month, except June, July, August and September, Hotel Vendome, Boston, Mass.

NEW YORK RAILROAD CLUB.—D. W. Pye, 30 Church St., New York 7, N. Y. Regular meetings, third Thursday of each month, except June, July, August, September and December, 29 W. 39th St., New York, N. Y.

NORTHWEST CARMEN'S ASSOCIATION.—E. N. Myers, Minnesota Transfer Ry., 1434 Iowa Ave., St. Paul 4, Minn. Regular meetings, first Monday of each month, except June, July and August, Midway Club, 1931 University Ave., St. Paul, Minn.

PACIFIC RAILWAY CLUB.—William S. Wollner, P. O. Box 458, San Rafael, Cal. Regular meetings, second Thursday of each alternate month at Palace Hotel, San Francisco, Cal., and Hotel Biltmore, Los Angeles, Cal.

RAILWAY BUSINESS ASSOCIATION.—P. H. Middleton, First National Bank Bldg., Chicago 3, Ill.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 308 Keenan Bldg., Pittsburgh, Pa. Regular meetings, fourth Thursday of each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRIC SUPPLY MANUFACTURERS' ASSOCIATION.—J. McC. Price, Allen-Bradley Company, 624 W. Adams St., Chicago 6, Ill. Exhibit in conjunction with meeting of the Coordinated Mechanical Associations and the Electrical Section, Mechanical Div., A. A. R., September 20-23, 1948, Chicago, Ill.

RAILWAY FUEL AND TRAVELING ENGINEERS' ASSOCIATION.—T. Duff Smith, Room 811, Utilities Bldg., 327 S. La Salle St., Chicago 4, Ill. Annual meeting, September 20-23, 1948, Chicago, Ill.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—A. W. Brown, Room 1424, 30 Church St., New York 7, N. Y.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York 7, N. Y. Meets with Communications Section, of A. A. R.

RAILWAY TIE ASSOCIATION.—Roy M. Edmonds, 610 Shell Bldg., St. Louis 3, Mo. ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—Miss Elise LaChance, Room 901, 431 S. Dearborn St., Chicago 5, Ill. Annual meeting, September 20-22, 1948, Hotel Stevens, Chicago, Ill.

SIGNAL APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York 7, N. Y. Meets with A. A. R. Signal Section.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, 4 Hunter St., S. E. Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta, Ga.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—P. J. Climer, N. C. & St. L. Ry., Nashville, Tenn., Acting Sec'y. Annual meeting, January 21, 1948, Atlanta, Ga.

TORONTO RAILWAY CLUB.—D. L. Chambers, Acting Sec'y. P. O. Box 8, Terminal "A", Toronto 2, Ont. Regular meetings, fourth Monday of each month, except June, July and August, Royal York Hotel, Toronto, Ont.

TRACK SUPPLY ASSOCIATION.—Lewis Thomas, O. and C. Company, 59 E. Van Buren St., Chicago 5, Ill. Exhibit in conjunction with meeting of the Roadmasters and Maintenance of Way Association. September 20-22, 1948, Hotel Stevens, Chicago, Ill.

UNITED ASSOCIATIONS OF RAILROAD VETERANS.—Roy E. Collins, 225 Bidwell Ave., Westerleigh, Staten Island 2, N. Y.

WESTERN RAILWAY CLUB.—E. E. Thulin, Suite 339, Hotel Sherman, Chicago, Ill. Regular meetings, third Monday of each month, except January, June, July, August and September, Hotel Sherman, Chicago, Ill.